

THE DÓLAR BLUE: THE BLACK MARKET EXCHANGE RATE FOR DOLLARS
IN ARGENTINA

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A thesis presented in partial fulfillment of the requirements for completion of
the Bachelor of Arts degree in International Studies
Croft Institute for International Studies
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The University of Mississippi
University, Mississippi
Spring 2014

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ABSTRACT

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At the beginning of October 2011, Argentina saw the emergence of a black market exchange rate for U.S. dollars. This black market exchange rate is known locally as the Dólar Blue. The importance of the Dólar Blue has become so public that it even has its own websites and social media accounts to inform its users of its daily rates as well as how and where to locate the human intermediary aspect of the black market known as the *arbolitos*. As a whole, black market exchange rates better reflect people's expectations about the true purchasing power of their currency and the corresponding rate of inflation. Black market exchange rates also provide people with a source of dollars that allow them to avoid inflation taxes levied on domestic currency. Evidence suggests that recent economic policy under the larger plan known as the *cepo cambiario* implemented by the administration of President Cristina Fernández de Kirchner is driving the black market exchange rate premium. By collecting daily exchange rate data for both the official and black market rates, this thesis tests the hypothesis that Fernández economic policy drove the black market exchange rate by calculating implied inflation levels. Then by following the methodology of Dornbusch et al. (1983), which supports the evidence that changes in the financial market cause fluctuations in the premium, this thesis analyzes the magnitude of the impact that five specific policies have on the Dólar Blue exchange rate. The results show that the magnitude of each of the five policies under the *cepo cambiario* have indeed had significant impact on the black market exchange rate, which implies that the Fernández government is in fact skewing officially reported inflation data.

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Chapter 1: **Introduction**

Overview

In Argentina there is a black market where one can trade their U.S. dollars for Argentine pesos at a rate that can be anywhere from 50% to 100% greater than that of the official exchange rate. For the common tourist this deal substantially enhances their buying power, but for some local Argentines, this is a daily way of life. The presence of a black market exchange rate in a country is surprisingly common in developing nations, but it is interesting when nearly every citizen is aware of this “underground” rate. Conspicuously public, most Argentines know the daily rates off of the top of their heads. Colloquially, the black market exchange rate is referred to as the “Blue Dollar,” or “dólar blue” in Spanish. The Blue Dollar is so widely known, in fact, that it has its own social media accounts that post the daily rates, such as the Twitter account @DolarBlue and the Dolar Blue Facebook page. According to *The Wall Street Journal's* Laos Turner that despite its popularity and importance, “it is impossible to determine the exact volume of the underground market, but analysts estimate the daily black-market trade running at between \$25 million and \$40 million” on a daily basis. On September 13, 2013 the black market rate valued \$1 U.S. dollar to \$9.30 pesos (www.dolarblue.net) as compared to the official rate stated at \$1 dollar to \$5.73 pesos (Bloomberg). This difference in rates, hereby referred to as the premium, is constantly changing, and it is something in which President Cristina Fernández de Kirchner and her government are frequently trying to intervene. She, like her constituents, is fully aware that the mere existence of the Dolar Blue is a red flag that there are problems within the economy like underreported, high monthly inflation. (McGinnis, 2013).

Black markets are the illegal markets in which goods and services are traded. Certain goods and services involved in these underground transactions may be illegal to own which therefore forces them outside of the operations of the “legal” economy. Black markets can encompass all sorts of goods and services, but for the purposes of this paper we will only concern ourselves with black market currency exchanges. These black market exchanges can result from several causes, such as the local government pegging the domestic currency to a foreign one at a level that overstates the currency’s true market value, or that the government has made it difficult, or even illegal, for anyone wishing to interact in the domestic foreign exchange market to obtain a foreign currency. In financial situations of high inflation and economic instability, citizens will prefer to use a more stable currency, like the US dollar, in place of their domestic currency.

The previous literature on black market exchange rates includes studies that show that although the transactions are in fact illegal by local government standards, more often than not the black market exchange rates prove to be more accurate than official rates in predicting and analyzing a currency’s real purchasing power. Where black market exchange rates exist, often times the official exchange rates are overvalued and present unreliable data for accurate economic analysis. Culbertson and Amacher (1978), Gupta (1981), Bahmani-Oskooee (1996), and Bahmani-Oskooee and Tankui (2008) have all conducted prior research testing various aspects of the black market exchange rates in comparison with official rates, and in most cases the black market rates were shown to be more consistent with economic fundamentals, especially in regards to true inflation levels.

Hypothesis

In Argentina, changes in previous economic and monetary policies appear to have been an important component in producing underground exchange rates like the Dólar Blue. Therefore, I hypothesize that specific Argentine policy like strong capital controls and government intervention in the exchange rate market are the forces driving the divergences in the black market known as the Dólar Blue.

I plan to investigate the Dólar Blue market by comparing the behavior of the official exchange rate with the Dólar Blue rate and exploring if changes in policy can explain the premium. To demonstrate why black markets are useful for analyzing the actual economic state of an economy, I will calculate the implied monthly inflation rate using the theory of purchasing power parity. If the implied inflation rate is significantly greater than the officially reported rate, and there is evidence that the premium is explained by policy then there is clear evidence that official policy is having detrimental effects on the economy via high inflation.

Organization of the paper

My research will focus on testing the previously mentioned hypothesis using both qualitative and quantitative research. To motivate the reader for the coming analysis, chapter 2 provides a brief history of Argentina's economic policy from the 1990s to the present day, and most importantly, it covers the emergence and gives an overview of the Dólar Blue market and its workings. Chapter 3 discusses the efficiency of black market exchange rates and how they can be used with the theory of purchasing power parity to calculate implied inflation rates, and outlines the methodology adopted to test the

hypothesis that policy is the source of the black market premium. Finally, I present evidence that policy can explain a significant variation in the black market premium.

Chapter 2:

Recent Economic and Monetary Policy: Introduction

Though the Argentine economy has long since been plagued with currency problems, this section will concentrate more directly on the recent monetary and inflationary problems under the current administration of Cristina Fernández de Kirchner and that of her late husband, Néstor Kirchner. Given its importance in Argentina, the Dólar Blue is a relatively recent phenomenon that emerged in late 2011. Black market rates such as the Dólar Blue are not out of the ordinary for a country like Argentina. On the contrary, they have been quite common throughout the years in various countries around the world. Some of the most studied black markets include Brazil (Dornbusch et al., 1983), Bolivia (Kharas and Pinto, 1989), the Soviet Union and Eastern European Soviet-type republics (Culbertson and Amacher, 1978), and the black market rate in Iran as studied by Bahmani-Oskooee (1996). However, few have been as important, or as well developed, than that of the Dólar Blue in large part due to the public distribution of its information on the Internet. In order to better understand the Dólar Blue, we must first go back and have a look at the major economic and monetary policies that have been put in place over the past few years. Within the next several pages, my goal is to discuss the important economic policies, specifically monetary policies, that have been put in place under previous administrations.

The Convertibility Plan and the 2001 Financial Crisis

The roots of the current day's economic issues can be traced back to the early 1990s during the Carlos Menem presidency. The first few years of his administration saw rampant inflation and severe social unrest. In 1989, his first year as president,

inflation was at 200 percent per month. Due to the constant uncertainty of inflation, Argentine workers would constantly rush to the nearest stores and supermarkets to spend their paychecks while they still had value. Layoffs and unemployment ran rampant. Following nearly two years of unrest in the country, President Menem appointed the Harvard-educated Domingo Cavallo to the position of economics minister with the hopes of curtailing the nation's financial problems and to help save his own administration (Blustein, 2005: 3).

In April of 1991, Cavallo came to the table with a strategy, one that he called "The Convertibility Plan." The Convertibility Plan was a monetary policy that pegged a set amount of the then Argentine currency, the austral, to the United States dollar. The new ongoing rate was set at 10,000 australes to 1 US dollar; however, by January of 1992, Cavallo replaced the austral with the old peso and set the exchange rate of pesos to dollars equal to one to one. Anyone with 10,000 australes could then easily exchange them for either one peso or one dollar. Also, the Convertibility Plan mandated that the Argentine Central Bank maintain its exchange reserves in gold or dollars equal to 100 percent of the country's money supply (Lewis, 2009: 52). This policy stopped the government from carelessly printing more money to pay deficits because more money could only be printed given that the reserves increased in equal amounts.

Public opinion soared after that plan's initial enactment in the beginning of 1991. Argentine citizens saw the plan as the government's willingness to actually restrain inflation. Alleviated by the now low inflation rates, the Central Bank's exchange reserves grew significantly due to the new inflow of capital from all over: overseas accounts, foreign capital and most importantly, profits from privatizations of former

government-owned companies. Coincidentally, Menem and Cavallo's plan behind revamping the Argentine economy fit perfectly with the ideas and practices of the Washington Consensus, which promoted tax reform, direct foreign investment, market-determined interest rates and privatization of government entities among others. The bulk of the privatizations occurred from 1991 throughout 1994. Such large national firms and entities that were privatized included government steel mills, Gas de Estado, electric power plants, water and sanitation companies, numerous railways, the highway system and the large state oil company, Yacimientos Petrolíferos Fiscales (YPF). In order for the Convertibility Plan to function at its best, the government would need to run budget surpluses so as to provide a stable safety net of reserves. The few surpluses that were run throughout Menem's first term were primarily a result of the profits from the privatizations of state enterprises (Basualdo, 2000: 241).

Though the Convertibility Plan was initially well received by the public, there were also those who had their serious doubts about it. By directly tying the national currency to that of the dollar, the entire country was susceptible to every economic sway of the US currency. An appreciation of the dollar would mean an equal appreciation of the peso. The peso would be more expensive which makes Argentine products more costly on a global scale. Expensive imports can result in trade deficits. Conversely, when the dollar depreciated so too did the peso. A cheaper peso makes Argentine goods more desirable on the international markets. Capital flight from Argentina would thereby shrink the Central Bank's exchange reserves causing a stranglehold over the country because of the decreased money supply. To prevent such situations, the federal government must monitor its spending and run overall budget surpluses. Menem's

government managed to run budget surpluses until 1994 chiefly due to the benefits from privatization. By the end of 1994, the majority of government held enterprises had already been sold, but then there were also the devastating effects of the Mexican Tequila Crisis.

The Mexican government's decision to suddenly devalue its own peso by up to 40 percent in December 1994 sent frightening messages out to international investors, particularly those involved in Latin America and other developing markets. Argentina was no exception. Investors quickly pulled their holdings out of Argentine banks and the nation's reserves shrank. This panic highlights the frailties of Menem and Cavallo's Convertibility Plan. Most possible economic solutions that would aid the recovery of the economy were simply not plausible under the plan without undermining it all together, such as printing more currency. The struggle of how to handle the ongoing economic troubles brought on by the withdrawal of investors, the ever-shrinking exchange reserves and an eventual recession, would soon become the overall frequent characteristics of Menem's second term. Just after the turn of the new millennium, the culminating results of the Menem government would lead Argentina in its worst crisis ever.

As a member of the opposition party, the UCR, the new incoming president, Fernando De la Rúa, would inherit an Argentina riddled with economic and social unrest. In 2000, the Convertibility Plan was still in full effect with the peso pegged evenly with the US dollar. The American dollar continued to appreciate thereby causing the peso to appreciate right along with it. Argentine goods were expensive, trade deficits were large relative to similar good produced in other countries, and the government continually drove up sales and VAT taxes, all on shrinking funds. Peronists called for an end to the

plan, claiming that it would alleviate the country's worries by allowing the government to print the money needed to pick the economy back up on its feet. Fearful of its political consequences, De la Rúa resisted the immediate abandonment of the Convertibility Plan, albeit temporarily. Two economic ministers had already come and gone under De la Rúa in just over a year. By March 2001, De la Rúa appointed Domingo Cavallo, the former economics minister under Menem who helped create the Convertibility Plan, to his old position in the hopes of restoring Argentina's economic integrity. Once again in power, the famed Argentine economist fought, to no avail, to stabilize the country's crisis of capital flight by stopping it.

In late 2001, Cavallo took a trip to Washington to ask the IMF for yet another loan. At this time the United States was fully involved in the aftermath of the 9/11 Terror Attacks and had little to no patience for a country like Argentina who had repeatedly failed to meet loan requirements, had flat out been incapable of loan repayments and who posed a large threat of a payment crisis (Lewis, 2009: 134). Before the year's end many foreign investors who were fearful of the ever-uncertain peso, began pulling out funds left and right from Argentine banks. Wealthy Argentines with proper connections also began to pull out their money from the banks and transferring them to various overseas accounts. With seemingly no other option in sight to end the massive run on the nation's bank, on December 1, 2001 Cavallo enacted what would become known as the *corralito*. The *corralito*, or the financial corral, froze all bank deposits, ceased all money transactions abroad and placed a withdrawal limit on every citizen to only US \$250 or 1,000 pesos a week. This sudden crunch of funds infuriated the public. The month of December saw mass riots in all parts of the country. Stores, shops and government

buildings alike were looted, vandalized and even destroyed. By month's end, both economics minister Domingo Cavallo and President Fernando De la Rúa had turned in their resignations. Finding a willing presidential successor in such a dire time was no easy task. From December 21, 2001 to January 2, 2002 Argentina saw five presidents come and go. The fifth was the Peronist candidate by the name of Eduardo Duhalde who would remain in charge until 2003.

President Duhalde assumed his charge as head of state and openly admitted that the nation was broke. Staying true to his Peronist, populist roots, Duhalde immediately allocated funds to help finance and establish soup kitchens throughout the country because forty percent of the Argentine population now lived below the poverty line. With really no other option available, in early 2002 Duhalde brought an end to the Convertibility Plan. The peso was no longer tied at the stringent one to one exchange rate, so it was allowed to immediately devalue by 30 percent. This coincided with all dollar-denominated bank accounts to be instantly converted to peso accounts according to the new 1.40 peso to dollar rate. This devaluation from the "pesification" of the economy came as a relief to debtors who could now repay some of their debt. On the other hand, this sudden conversion of dollar accounts deposited at a one to one peso ratio wrought havoc on the frugal savers. For instance, people who had a total of \$10,000 in an account under the Convertibility Plan then found that their accounts were valued at approximately \$7,100 literally over night. To make matters worse the peso would continue to constantly devalue, reaching a rate of 4 to 1 in March of that year. The sheer uncertainty of the economy drove away many foreign investors. Argentina was losing what little financial credibility it had in the world, and no one wanted to be involved. The IMF continually

refused more loans because of habitual failure on behalf of the Argentine government to repay them in the past. The Bush administration and the European Union both agreed to stick by the IMF's decision. Despite the international pessimistic attitude, the economy did indeed begin to show signs of improvement in the last months of 2002. This slight growth is attributed to the government's halting payments to its creditors abroad and instead pumping the funds back into the public works sector, particularly construction (Lewis, 2009: 154). At the same time the government's outstanding foreign debt stood at \$178 billion. At this point election time was approaching yet again, and Duhalde would not be able to seek reelection due to the specific terms of his election. It would be up to his successor to handle the rest of the problems facing Argentina.

La llegada de los Kirchner: Néstor

As of yet, it has been my goal to present background information on the recent Argentine economy, so as to better understand my overall topic that explains the existence and causes of the black market exchange rate known as the Dólar Blue. In this section I aim to suggest that the economic and monetary policies under both Kirchner administrations are the factors responsible for the emergence and continued rise of today's Dólar Blue premium.

In 2003 the country elected a new president, Néstor Kirchner, a former governor from the southern province of Santa Cruz. Kirchner's arrival to the presidency would bring in a wave of political and economic changes that still affects the country today through the workings of his wife and now current president, Cristina Fernández de Kirchner. Kirchner, like ex-presidents Duhalde and Menem, was a member of the

Justicialista, or Peronist, party. Former president Juan Domingo Perón (1946-1955; 1973-1974) founded the *Justicialista* party under the belief that it worked around three basic principles: social justice, economic independence and national sovereignty. Perón named these the *Tres Banderas* (Three Flags). Kirchner was initially a close ally of Duhalde, but they would eventually have a falling out over how government funds should best be spent. Kirchner supported strong federal-based spending whereas Duhalde wanted to give more spending authority to the provinces. According to Kirchner, Menem was a traitor to Peronism. His free market ideas sent the country into the terrible condition that Kirchner faced. Ideologically, Kirchner identified with more of a grassroots, leftist perspective and fully supported Perón's idea of governing. As president he would apply the same populist techniques that he had used when he was governor of Santa Cruz, which included economic rejuvenation to secure political power and authority (Noriega and Cárdenas, 2013). He was well aware that the recovery of the economy was crucial to his future political career as well as to the health of the nation, but this recovery would be done the Argentine way. This means a recovery method where the Argentine government had more of role in how this would take place and not one entirely determined by international organizations like the IMF or the World Bank.

Appealing to the traditional Peronist, populist base, Kirchner would seek allies amongst groups such as the *piqueteros* who would prove more than useful in helping him achieve his political agenda. The *piqueteros* were a leftist group consisting of various organizations like the *Movimiento de Trabajadores Desocupados* (Unemployed Workers' Movement), the *Movimiento Independiente de Jubilados y Desocupados* (Independent Movement of Retirees and the Unemployed) and the *Federación Tierra y Vivienda* (Land

and Housing Federation). The name *piqueteros* comes from the word “to picket.” They protest by amassing in large numbers and hold huge rallies which can block off entire sectors of cities or more specifically, certain businesses, government buildings and even entire highways to disrupt the flow of transportation. Quickly seeing the power they held, Kirchner frequently used them as intimidation factors throughout the country. Many times they would protest large international companies like Shell Oil to pressure them to lower their rates that were crippling an already cash-strapped economy. In return, these groups looked to the president for wage increases. The persistently devaluing peso continued to wear down on their buying power. In order to answer this request as well as avoid inflation, Kirchner called for a compromise between workers and employers to institute a slight increase in wages that would not affect the common consumer in the way of price increases nor cause inflation. According to Lewis (2009), “[g]iven the economy’s underlying infirmities, such an approach satisfied neither the workers nor the employers, but Kirchner was ready to be confrontational, if necessary” (157).

Foreign debt had been continually accumulating since the 2001 financial crisis. When Kirchner was elected into office in 2003, foreign debt totaled \$178 billion, and international investors were looking for payment. Argentina had already notoriously defaulted on its foreign debts on several occasions, and all too many Argentines could still remember three defaults within their lifetimes: in 1982, 1989 and finally the largest default in history in 2001. President Kirchner declared that Argentina should make no more debt payments if it meant that everyday citizens must go without basic needs, such as transportation, education, housing and health care. Being fully aware that Kirchner

meant business about yet another default, international investors scrambled to come up with an idea on how to get paid.

A debt restructuring compromise, known as the debt haircut, was to be put in place. Essentially, international investors were desperate enough for cash that they would be willing to accept significantly less than face value of their claims. To do so, Kirchner along with his economics minister, Roberto Lavagna, created a \$140 billion bond exchange program for private creditors. It was initially thought that not many private creditors would accept these new bonds, but desperate times called for desperate measures. Nearly three quarters of creditors bought the new government bonds. This restructuring lowered the country's total foreign debt down to \$35 billion, but Argentina still owed large sums to the IMF and other nations in the Paris Club. However, without the IMF's approval of these new bonds, no one in the international community would accept them. The world would come to see Argentina as untrustworthy and financially unreliable. With such a negative view in the world of foreign investment, Kirchner was forced turned his government even more nationalistic as a means of financing itself (Montenegro, 2005).

Since the 2001 crisis, the peso had been gradually declining in value. A cheaper peso meant cheaper Argentine agricultural exports at a time when global prices were high. The successful agricultural industry from 2004 to 2005 generated enough revenue to allow the country to pay off some \$9.5 billion of its ever-lingering foreign debt. Shortly after arranging that payment, Economic minister Lavagna sat down with the IMF and attempted to negotiate a new round of loans. The IMF first wanted to see evidence of economic responsibility and asked that the Kirchner administration enact austerity

measures. The IMF sustained that large spending without private investment would only further inflation. Lavagna agreed with the organization and attempted to create a new austerity plan. Lavagna soon found his attempts to bargain interrupted by President Kirchner himself. An austerity plan simply did not work with Kirchner's economic agenda and neither did Lavagna's increasingly questionable views. A few days later in November 2005 Lavagna formally turned in his resignation. Within a month, Kirchner took the final step towards financial independence and formally announced that his administration would liquidate the remainder of the nation's debt to the IMF. In December 2005 Kirchner signed away the debt in a single payment from the Central Bank reserves (Montenegro, 2005).

With the burden of the IMF's constant pressuring and demands off his shoulders, Kirchner and his administration were on their own to support the economy as they saw fit. In 2006 various international companies began to leave Argentina, some prominent companies include Suez, a French water treatment company; EDF, a French electric power transmission company; France Telecom and National Grid, a British power company. Old policies from 2002 were continuing to hurt them; specifically the rate freezes that were placed on all utility companies during the pesification of the economy in 2002. Most of the foreign companies' contracts were signed during the Menem administration following the mass privatizations of once government companies. Their contracts stated that utility rates were to be collected along the one to one peso to dollar exchange rate. Following the immediate pesification of the economy and the resulting devaluation, utility companies found that their charging rates were not frozen at the old rate but in a much devalued peso denomination. Frozen rates and inflation were having

negative effects on companies' incomes. Whenever a company like Shell Oil tried to raise its prices, Kirchner would send in his *piqueteros* to convince them otherwise. In order to ensure that the local economy's utility needs were being met, Kirchner would begin to restrict the exports of oil, gas and food. Also, employees at these plants began to demand large wage increases which Kirchner provided.

Around 2005 the National Institute of Census and Statistics (Instituto Nacional de Estadísticas y Censos: INDEC) published official inflation data comparing the years 2004 and 2005. The report showed that inflation had doubled within the span of a year from 6.1 percent to 12.3 percent. Rushing to cover up the uncomfortable truth of the economy, Kirchner sent in a loyal *Kirchnerista* and Secretary of Domestic Trade, Guillermo Moreno. According to *The Economist's* 2012 article "The Price of Cooking the Books," under the president's authority Moreno promptly fired the then head of INDEC, Graciela Bevacqua, and began to censor all official inflation data published by the institute. The censorship of the institute's data still continues today. We now begin to see an all out war against the publishing of true inflation data in the country. The administration's preferred weapons were price controls and government censorship of data.

Key sources in the country's recovery stemmed off the profits from the export sector. These profits came in the way of revenue to the producers and the often times heavy export taxes to the government. The devalued peso made Argentine products very desirable abroad. Business on the international market was so good in fact that local producers began short-selling the domestic economy causing shortages as well as price

increases. In response, in 2006 Kirchner frequently placed export bans on producers in order to maintain good domestic supplies and steady prices.

For example, in times of extreme cold during the winter months of May and June, the government would frequently shut off pipelines supplying gas to neighboring Paraguay and Chile so that the Argentine people would not suffer from an energy shortage themselves and go cold. When restricting exports it is important to note that other nations will reciprocate. All else held equal, when exports are restricted then a trade deficit is caused, meaning that the net flow of currency flowing out to purchase imports is greater than the net flow of currency coming in to purchase exports. As a result, trade deficits can drain a nation's central reserve funds.

Even with the supply to Paraguay and Chile cut off, energy and gas brown outs were still common occurrences throughout the country. Energy companies claimed they lacked necessary funds to function at full capacity because of the rate freezes, but Kirchner argued that the energy brownouts were due to the booming economy using more energy (Lewis, 2009: 166). Gas shortages became a common event under Kirchner. During the winter months, gas stations would frequently run out of fuel. Companies claimed that under their tight budgets they only had a limited processing power. During the winter more concentration went into refining natural gas for home heating than did for gas oil and fuel oil. On July 9, 2007, his last year in office, the country suffered a particularly nasty cold snap. Businesses were asked to shut down to conserve as much energy as possible. Soon gas stations throughout the country began to run out of fuel. Over the next few days, nearly entire country had shut down resulting in massive loss of revenues due to the lack of everyday business operations.

Those in the agricultural sector cautioned that if the energy cut back did not come to an end soon then food production could be seriously disrupted bringing along raises in prices. The government soon turned to the Secretary of Domestic Trade, Guillermo Moreno, who became a key player in the Fernández government in handling further inflation cover up and the Dólar Blue market. Moreno was the man who went in on behalf of the Kirchner administration and censored the official records of the INDEC, and as Secretary of Domestic Trade he was responsible for setting price controls. Notorious for his often time's unorthodox powers of persuasion, Moreno usually forced companies to succumb to the will of the government. This time the majority of gas stations defied him and simply shut down. Moreno suggested that Kirchner hold a personal meeting with the heads of the oil companies to convince them otherwise. Kirchner did just that and gathered the local CEOs. He convinced them to concentrate production more on fuel gas and oil rather than natural gas production. For fear of being nationalized, the various companies agreed to the deal even though it would create a loss in revenue.

Energy was not the only export the government restricted however. There would also be large export restrictions placed on agricultural products. According to Lewis (2009) these restrictions were just the beginning of the Kirchners' tense relations with the agricultural sector. For instance, in March 2006 the government placed a temporary ban on the export of one of the nation's largest exports, beef. Farmers experienced a huge loss in revenue because they were not able to sell their beef abroad at high prices. Two months into the 180-day ban and the agriculture sector told the government that it was ready to protest violently if needed to have the ban lifted. In May the government compromised and did indeed relax the beef restrictions but also reacted by raising the tax

placed on these exports. These taxes were, after all, a significant part of government revenue because agricultural and agricultural related products constituted over fifty percent of the nation's exports. The administration was not about to reduce them anytime soon. By this time Néstor Kirchner was showing that he was a true follower of the protectionist phase of Peronism through his populist policies of price controls, trade restrictions, debt repudiation, hostility towards foreign investors and using government funds to pump-prime the domestic economy and create new jobs (Lewis, 2009: 162).

La llegada de los Kirchner: Cristina

Despite his falling outs with the agricultural industry, the energy sector and foreign investors, Kirchner remained a remarkably popular president near the end of his term in 2007. It puzzled the nation when he announced that he would not seek reelection, but that he would instead support his wife, Cristina Fernández de Kirchner, for the candidacy.¹

Fernández is from the city of La Plata in Buenos Aires province. It was in college that she met her husband Néstor, as the two were both left wing Peronists. Shortly after their marriage the two moved to Kirchner's home province of Santa Cruz where they opened up their own successful law firm. Fernández made the political scene beginning in 1989 when she became a member of the provincial legislature. She would eventually move up and be elected to the national house of deputies and then later to the senate. While Néstor Kirchner was president, Fernández gained international popularity and

¹ For the sake of clarity, I will henceforth refer to Cristina Fernández de Kirchner as simply Fernández whereas I will refer to Néstor Kirchner with simply Kirchner.

sought election to represent the province of Buenos Aires in the Federal senate in 2005 whereby she soundly defeated former president Duhalde's wife, Hilda "Chiche" Duhalde. Riding on the coattails of her husband and with his backing, Fernández ran for the presidency in the 2007 elections. She won with just over forty-five percent of the vote, just the amount needed for a win, in a multi-party race defeating the two runners up Elisa Carrió and former economics minister, Roberto Lavagna. Her election was the first time a spouse had been elected president just after the other without the death of either in the democratic world. With Fernández now in the Casa Rosada and former president Kirchner as the first gentleman, the two became the national power couple of Argentina. Seven of her twelve minister positions were spillovers from Kirchner's administration, and many wondered if Fernández would be an effective leader and not just a puppet of her husband. From the onset Fernández proved to be a capable leader, and one who stuck to her Peronist roots of the *Tres Banderas*; although, during her first term her husband was still very much a part of the national political scene and would remain so until his untimely death in October 2010.

From her husband, Fernández had inherited a nation whose economy was constantly on a precarious edge. Growth rates were high, especially so in the construction and tourism industries, but foreign investors continued to maintain their distance from Argentina. The debt haircut under Kirchner discouraged many prospective investors. Also, the Kirchners' Peronist governing style belittled foreign owned entities in Argentina by always demanding price controls. This negative attitude only further shunned foreign investors. The nation's credit rating was in ruins. International loans were nearly impossible to secure. Long-term domestic loans to private citizens were

even difficult to acquire simply because most people had no trust in the national banks. Instead, many Argentines placed their money in overseas accounts. To avoid the government's heavy taxation policies nearly half of the economy was driven underground (Porzecanski, 2012). Underground economies were nothing new in Argentina. As we have seen, it is a nation that has experienced more than its fair share of economic issues that only further drive the need and allure of "black market" dealings. We will soon discuss certain Fernández policies that lead to the creation and further propagation of the black market for dollars, colloquially known as the Dólar Blue. On the national level the underground economy accounted for nontaxable economic activity. The lack of this possible tax income would only further undermine the government's ability to continue to pump-prime the economy with its populist agenda. Overall, the new Fernández government was faced with an economy suffering a severe lack of international credit that would bring on high inflation as the country had become its own principle investor. Growth without inflation demanded new investments to improve the nation's production capacity, but these much-needed investments would not be soon forthcoming (Lewis, 2009: 169).

Barred from foreign credit sources the Fernández government was forced to seek cash sources within their own country. Agricultural exports from the nation's farmers constituted enormous percentages of the government's funding, but it had not always been that way. Under the established rules of the local trading bloc MERCOSUR, taxing exports to member nations like Brazil, Uruguay, Paraguay and Venezuela was not authorized. Given the certain crisis that Argentina faced under the Duhalde administration, this provision was overlooked and the government implemented a ten

percent tax on agricultural exports. This proved to be a source of much needed income and with the Kirchner presidency the taxes, referred to as retentions, became higher still. The Kirchners saw this method of taxation of the agro-industry as helping the economy because the high taxes on goods such as bread, milk and beef would deter the farmers from exporting too much which would help keep a steady supply in the local market. Rather than sit back and take a financial loss due to price controls on consumer goods, Argentine farmers switched their major production to soybeans and sunflower seeds. The global demand for these two products was at an all time high. Naturally, the government would not permit that the farmers reap these profits all for themselves. When Fernández took the presidency she wasted no time in raising these retention taxes. Her administration went as so far as to implement a “sliding,” or adjustable, retention rate that could reach as high as 58.5 percent if the prices were high enough (Lewis, 2009: 172). The rate actually reached as high as forty-four percent. Fernández and her administration only thought it fair for the farmers to share their wealth with the nation. The farmers, on the other hand, did not agree. According to the newspaper Clarín, by the time the taxes were taken out, many farmers were left with little to no profit at all (Matias, 2008). In March 2008 tensions ran high and farmers across the nation went on strike and used their tractors to block the roads. What came next would turn into a months long standoff between the agricultural sector and the government.

The farmers claimed that the retention rates were running them out of business, but the government refused to back down because the revenue from these retentions helped fuel the Kirchner’s populist agenda. The opposition appealed that presidential authority could not legally enact such a policy. Fernández took the sliding tax rates to the

floor of the national congress. She also refused to negotiate a compromise that would allow any proposed amendments. Meanwhile, strikes continued throughout major cities causing food shortages. In July the bill came up for debate and the congressmen were split down the line, 50/50, over the issue. The final deciding vote came down to the then vice-president, Julio Cobos, who shockingly voted no. The controversy had finally come to an end. The rejection of the sliding tax rate was the first major Kirchner loss. Export taxation rates fell back to normal levels but were not done away with all together. The Fernández government had experienced its first loss of extra funds that the taxes would have provided to continue to fund its agenda and pay foreign debts.

Despite the country's inaccessibility to foreign markets due to its poor international credit rating, the national economy showed signs of improvement under Fernández's administration. In July 2010, the foreign reserves in the Central Bank of Argentina (Banco Central de la República Argentina: BCRA) grew to its highest level ever at \$51 billion USD. In keeping with the nation's duty to pay debts, Fernández declared that further debt payment would continue to be drawn from the BCRA's foreign reserves. Over time the steady use of foreign dollar reserves would only further drain the Bank's supply of dollars as well as increase the supply of pesos to the public. This carries with it the threat of more inflation (Quiroga, 2012). However, it is necessary to mention that the official inflation rates are really unknown figures because of the artificial manipulation by INDEC. INDEC's skewing of official economic data became so well known in fact that in 2012 the president of the IMF, Christine Lagarde, sent a warning to President Fernández that Argentina needed to publish accurate data of the

well being of its economy or else it could suffer possible sanctions (MercoPress Sep. 9, 2012). As of yet no such sanctions have been enforced.

With the majority of Argentine citizens suffering under various price controls and the ever present, yet not official inflation, the peso was becoming a less and less trustworthy currency. Many citizens hold savings in much more stable dollars, make day-to-day transactions in dollars and continue to deposit more of these dollars in foreign bank accounts. Capital flight in 2011 alone was estimated around US \$21.5 billion (Porzecanski, 2012). This unauthorized use of dollars was undermining the BCRA's peso reserves and worsening the country's financial situation. Immediately after her reelection to her second term in office, the Fernández administration began enacting certain policies through various governmental organizations that would hopefully put a stop to this capital flight and limit the use of dollars in the country. This process would become known as the *cepo cambiario*, roughly translating to the "exchange stop." The first policies of the *cepo* enacted in the beginning of October 2011 would also give birth to a popular black market to supply the nation's great demand of dollars.

The Beginning and Rise of the Dólar Blue:

Despite it being a black market, the Dólar Blue is by no means clandestine. On the contrary, the rate is very much public knowledge. This black market went public on the web and on social media around the beginning of October and proposed an alternative, or parallel, exchange rate between the US dollar and the Argentine peso known as the Dólar Blue.

Major national newspapers frequently publish the rate, and *La Nación*'s website even includes an exchange rate converter that allows anyone to see how many dollars they can get at both the official and Dólar Blue rates. To find the most accurate and up to date rate, it is best to consult the source directly by visiting either dolarblue.net, dolarblue.org or by following the @DolarBlue Twitter account. The dolarblue.net shows a table listing both the current day's selling and buying values of dollars, among various other international currencies. The dolarblue.org site offers charts similar to that of Figure 1 (Figure 1 (see page 50) will be discussed in greater in the next chapter) which plot out the Dólar Blue rates side by side with the official rates as well as providing links to various news articles and blogs about the every day happenings within the markets. These web accounts are managed from one or two of the central *cuevas*, or exchange offices (literally meaning "cave" in Spanish), somewhere in Buenos Aires. The locations of these *cuevas* change frequently due to the occasional government crackdowns to stop their illegal activity.

The most visible aspect of the market involves the actual human interactions in the streets of Argentina's major cities. The following observations are mainly based off my own personal experience in Argentina, but they are further discussed in other works, such as Porzecanski (2009), Gorodisch (2014), Elliott (2014) and *The New York Times*'s "Argentina on the Brink" (2014). Each big city has its own street that is famous for its *arbolitos*, meaning "little trees," who stand on every corner. *Arbolitos* is the term given to the men who act as the front line of the black market exchanges. The colloquial name "little trees" comes from the fact that these guys are like stationary trees on the street corners extending their arms with wads of cash that resemble leafed branches. So as to

provide the most accurate transactions as possible, they receive constant updates about the changing exchange rate throughout the day by keeping in contact with the head *cuevas* in Buenos Aires. During the workday all along the corners of Calle Rivadavia in Córdoba, Calle San Martín in Mendoza and Calle Florida in Buenos Aires there is the ever-constant yell of “¡Cambio! ¡Cambio! ¡Cambio! ¡Dólares! ¡Dólares! ¡Dólares! ¡Yo tengo dólares!” (“Exchange! Dollars! I have dollars!”) The *arbolitos* unabashedly announce their presence and that they are open to do business with anyone who is willing. Meanwhile, there are policemen standing on the opposite corner minding their own business acting as if nothing illegal were taking place. Even in the not so vigilant presence of the police, Argentines and tourists alike often approach the *arbolitos* and discreetly inquire about the day’s rate. If they decide to take the deal, the *arbolito* escorts them to the closest alley or doorway where the actual exchange takes place. Once the transaction has finished, the Argentine or tourist goes on his way while the *arbolito* steps back out into the street yelling, “¡Cambio! ¡Cambio!” to attract yet another customer. These intricacies of the Dólar Blue market did not come about merely over night. Rather, Argentina has a long history with black market dollars. The Dólar Blue Market is just the culmination of years of experience of supplying black market dollars. Its emergence was simply the rational economic response to the Fernández government’s various control policies to stop capital flight and to preserve the dwindling levels of the nation’s foreign reserves.

The list of measures taken by the Fernández administration and the national monetary authorities like the Central Bank (BCRA) and the Federal Administration of Public Revenue (Administración Federal de Ingresos Públicos: AFIP) that compose the

cepo cambiario is an extensive one, but here I will attempt to briefly cover most of them chronologically.

The government's first restrictive policy took effect in the beginning of October 2011 and established the intervention of the AFIP in every foreign currency exchange business, which requires them to apply for and receive an explicit permit acknowledging their legitimacy to process currency exchanges. After this policy was implemented, the Dólar Blue premium came into being. In December 2011 the Central Bank began to mandate that all banks should report ten days in advance for prior approval when a citizen wishes to make a currency exchange at their local bank in order to make sure that they would have the foreign currency on hand. Moving on to February 2012, the BCRA put stipulations on companies wishing to acquire dollars. Specific companies would have to show a certain need for dollars such as buying imports in order to receive official, verbal consent from the monetary authority.

On April 3 the BCRA established its right to maintain dollar accounts in order to pay international debit card transactions. This action increases the Central Bank's own use of dollars. Then on May 10 the AFIP further limited the ability of private citizens to acquire dollars. It mandated that they could only receive a quantity of dollars that amounted to 25% of their total income, whereas before the rate had been 40% of an individual's income. This limit coincides with the fact that government had not yet received dollar funds from the agricultural industry.

Later that same month, on May 22, the AFIP began regulating the amount of dollars citizens would receive for travel purposes. This required Argentines to go online and complete a certain form. An overview of their answers on the form and a review of

their tax records would be the determining factors for how much foreign currency they would receive from the authority. In August 2012 the AFIP would ask that request for dollars for travel purposes must take place at least seven days prior to departure.

Again targeting the agricultural industry, in June 2012 Fernández's AFIP suddenly nullified the usage of electronic billing in dollar denominations for transactions within the country. This sudden rule of change hurt the agricultural sector because electronic dollar billing was how companies conducted business with one another. They were now forced to conduct all transactions in peso denominations.

Soon thereafter, the AFIP deleted the option from its webpage that allowed Argentines to acquire dollars for saving purposes, and on July 5, 2012, the monetary authority made it official that dollars would not be distributed for personal savings purposes. Whoever wished to acquire dollars only had the remaining options of traveling to neighboring countries like Chile or Uruguay to engage in currency exchange transactions, or investing in physical goods like real estate.

On July 13 the policies of the government extended to the nation's retired community and stated that any Argentine receiving a foreign pension in a foreign denomination would be then be forced to receive said pension in only peso denominations. In August some banks began to stop the advance payments in dollars on Argentines' credit card bills with the aim of controlling the constant flow of dollar consumption. In September the monetary authority started to place fifteen percent surcharges on all foreign transactions via credit cards. Within a short period this surcharge would eventually extend to debit card transactions abroad as well as all foreign

Internet sales or purchases. Also at the beginning of September, 2012 the government declared that all private exchange posts located in airports or other points of entry were no longer permitted. Only public banks could then legally process currency exchanges with the necessary approval for Argentine citizens and with a limit of only US \$500 to foreigners. Furthermore, those wishing to travel abroad would only receive the currency denominations of the specific country that they were to visit, not dollars. Moving forward to March 15, 2013, the AFIP limited the use of credit cards in placing bets abroad, and a few days later on March 18, the authority increased the fifteen percent surcharge on goods bought abroad with a credit or debit card up to twenty percent. Argentines would see this surcharge rise yet again on December 4, 2013 to thirty-five percent.

On May 8, 2013 the country saw the biggest jump in the Dólar Blue market yet. It doubled the official exchange rate of \$5.21 pesos/dollar reaching \$10.50 pesos/dollar. This produced the highest black market premium that Argentina has seen at 101.5%. This jump can likely be attributed to the government's speculation of further official devaluation on April 25 when the Blue surpassed \$9 pesos/dollar for the first time. In order to attempt to lower public expectation of official currency devaluation, the BCRA restrained the rise of the official exchange rate by 1.2%. The effect was just the opposite. The Dólar Blue rate increased until it reached its peak of \$10.50 pesos/dollar.

Following this adjust in the exchange rate, the government placed limits on the amount of dollar withdrawals from ATMs that Argentines could make outside of the country. The limit was placed at \$100 USD from ATMs in the five neighboring countries Chile, Bolivia, Paraguay, Brazil and Uruguay, but the limit was set at \$800 USD for the

rest of the world. Finally, on November 14, 2013, the government would ban all foreign goods bought from the Internet all together (iProfesional.com, Jan. 24, 2014). The policies of the *cepo cambiario* are still ongoing at the time of this paper, but for the sake of time I will only cover policies leading up to year's end 2013.

Overall, the list of the *cepo* policies is an extensive one. Contrary to government's intended efforts, each one of these policies has had an effect on the black market premium between the Dólar Blue and the official exchange rate, though some have more prominent effects than others. Continually blocking the everyday citizen's access to much needed dollars would only further drive the demand for them and thus the increasing black market supply. The perpetuation of this informal dollar market continues to frustrate government officials who frequently acknowledge its existence and threaten to "combat these illegal transactions with the law and treat them as if they were acts of narcotrafficking or money laundering" (iProfesional.com, Jan. 23, 2014).

Conclusion

In this chapter we have seen how Argentina's economic history regarding exchange rate regimes, price controls, debt defaults, and central bank reserves over the past two decades have played significant parts in developing its current day economic situation and thus providing the emergence of Dólar Blue black market. In summary, we started by discussing Menem's Convertibility Plan as a means to stabilize the country's inflation levels. The country did well for the first few years under the plan but primarily as a result from the incoming privatization funds. By 2001 the appreciation of the US

dollar was hurting the evenly tied Argentine economy whose goods could not compete on a global level. That same year Argentina experienced the world's largest debt default, and as a result ended its Convertibility Plan. The sudden pesification of the economy caused problems in itself, but eventually the country began to stabilize itself. In 2003 we saw the arrival of Kirchner and his Peronist, populist policies. The effects of his debt haircut and strict price controls are still seen today. In 2007 the Fernández administration would continue the leftist Kirchner policies through the current day. Most notably, however, are the policies enacted under Fernández that aimed at curbing the capital flight of dollars beginning in 2011. This *cepo cambiario* would backfire on Fernández and create an underground market for dollars.

Now that we have a brief understanding of Argentine economic history leading up to the arrival of the Dólar Blue, in the next section I will discuss the methodology that I will use to take an economic perspective on what is happening in Argentina. That is, what does the existence of the Dólar Blue market signify with regards to inflation and how can we calculate actual inflation rates?

Chapter 3: **Empirical Analysis**

Now that we have discussed the background information of the black market for dollars in Argentina, we will discuss what this market suggests about the Argentine economy. This empirical analysis chapter will be divided into four different sub-sections. In section I, I provide graphs of the Dólar Blue rate and the official rate as well as discuss the changes in the rates with regard to the dates of the *cepo cambiario* policies. Through casual inferences of the data shown by the graphs in figures 1 through 4, I revisit my overall hypothesis that certain *cepo cambiario* policies have caused or have had a significant impact on the changes in the black market premium rate. In section II, I discuss how the black market exchange rate better reflects people's expectations about the purchasing power of their currency and how it is a rational economic response to high levels of inflation. Additionally, I discuss purchasing power parity and how it can be used to illustrate the "true" rate of inflation. Understanding purchasing power parity with regards to black market exchange rates is crucial to the importance of this paper because the black market exchange rate in Argentina suggests that the inflation rate is much higher than the officially reported rate. Herein lies the importance of testing the hypothesis that these *cepo cambiario* policies are driving the black market premium. The premium exists because these policies are making it harder for individuals to avoid inflation. Thus, the black market exchange is likely a much better indicator of the true value of the currency and the corresponding rate of inflation. In section III, I discuss the approach to analyzing the black market premium as laid forth by Dornbusch et al. (1983). Also, I argue how I plan to adapt this methodology to analyze the data that I have collected. In my analysis I aim to prove causation that specific policies of the *cepo* have

driven the increase in the black market premium. Finally, in section IV, I estimate the results of my analysis following Dornbusch et al. (1983), and I conclude with what the findings imply for the black market premium and the Argentine economy.

Section I: The Dólar Blue Premium

The premium is the term given to the difference between a country's black market exchange rate and its officially stated exchange rate. I have collected daily rates for both the official exchange rate and the black market exchange rate from October 2011 through December 2013. The daily official exchange rate come directly from the Banco Central de la República Argentina's database, and the Dólar Blue rates were compiled from the price listings found on dolarblue.net. By doing so, I have been able to chart out exactly when these specific changes in the exchange rates occur and how much the Dólar Blue varies from the official over time. Having daily data facilitates the analysis of the various trends that occur among the exchange rates. This analysis becomes even easier when combined with the previous information regarding the dates of the *cepo cambiario* policies. By knowing the specific dates of when policies take effect, I can pinpoint their effect on the Dólar Blue exchange rate.

I used the daily data for both the official and Dólar Blue exchange rates to create several charts that allow us to see the differences between the two. This difference, or the area between the two line graphs in Figures 1 through 4, is the premia. **Figure 1** (page 50) shows the data for the entire timespan of my study, October 2, 2011, to December 31, 2013. As is expected, the official exchange rate of pesos to dollars is indeed less than that

of the Dólar Blue and considerably so in some cases. The official rate continues along a slightly increasing trend throughout the timeline only growing slightly steeper in 2013 than the other two years, but overall there are no significantly drastic changes except one small jump on March 26, 2013, which appears to be an anomaly. The case of the Dólar Blue has quite the different pattern. We notice a roller coaster looking start in October 2011 with a few ups and downs in the rate. For the most part it remains relatively smooth until May 2012 where we begin to see large, noteworthy devaluations. After July 2012 the Dólar Blue begins to plateau but only until the beginning of 2013. Since nearly day one of January 2013 the black market rate continues to rise, which denotes a devaluation of the peso to the dollar. The most notable peaks occur in the months of March and May. To take a closer look at the data trends, we can turn to **Figures 2, 3 and 4**.

Figure 2 (page 50) displays the exchange rates for the year 2011. Because the Dólar Blue did not come into being until late 2011, there are only daily data for the months of October, November and December of that year. There is clearly a difference in rates during these three months, but it is not much, averaging only \$0.39 pesos/dollar for the quarter.

Figure 3 (page 51) presents the exchange rates for all months of 2012. As can be seen in Figure 1, the black market rate stays fairly constant until May. At one point there is a full one peso in devaluation, and July 18 shows a sudden devaluation peaking at \$6.73 pesos/dollar. For the remainder of 2012 the rate hovers around \$6.50 pesos/dollar. The premium average for the year totals \$1.19 pesos/dollar.

Figure 4 (page 51) provides the daily rates for 2013. 2013 is clearly the most volatile year with near constant devaluations until the rate reaches its zenith on May 8 at \$10.50 pesos/dollar. The official rate was quoted at \$5.21 pesos/dollar, which made the premium an astounding 101.5%. It continues to be the single highest premium percentage that the Dólar Blue has reached to the current day. After May, the rate drops, or appreciates, until mid July from where it continues its ups and downs of devaluations into 2014. The yearly premium average equals \$3.32 pesos/dollar.

By comparing the dates of the *cepo cambiario* policies with the significant fluctuations in Figures 1 through 4, I have found five restrictive policies whose dates coincide with changes in the black market premia. These policies will play an important role in the methodology and estimation sections of the chapter and will be referred to as Policies 1 through 5. Policy 1 is an individual capital control that involves the intervention of the AFIP on May 10, 2012, in reducing the limit of dollars that private citizens can acquire, amounting to only 25% of their income. Policy 2, a travel capital control, entails the AFIP's regulation of the amount of dollars Argentine citizens would receive for travel purposes based off answers provided in an online form and personal income starting on May 22, 2012. Policy 3 took effect on July 13, 2012 and it comprises the BCRA mandating that all foreign pensions be received in peso denominations. We will call this a pension capital control. Policy 4 on the March 18, 2013, increased the 15% surcharge on goods purchased abroad with credit or debit cards to a new surcharge of 20%, a surcharge capital control. The last policy that I found to be notable will be referred to as Policy 5 which came into effect on April 25, 2013, when the government speculated further devaluation of the official rate, it thereby retained the rise by 1.2%.

Policy 5 is an exchange rate control and would eventually lead to the large May 8 devaluation.

I have discovered that these policies fall on the day of or a few days prior to significant devaluations in the Dólar Blue rate. Policy 1, the individual capital control, takes place on May 10, 2012, and falls just as the first large devaluation occurs in the black market. The rate jumps from \$5.10 pesos/dollar to \$6.62 pesos/dollar in a matter of eleven days. The Policy 2, the travel capital control, takes place just 12 days after Policy 1, but it too coincides with another visible devaluation that sees the Dólar Blue jump above \$6 pesos/dollar for the first time. At a rate of \$6.12 pesos/dollar the premium totals 37.2% on May 23, 2012. The Policy 3, the pension capital control, on July 13, 2012 comes just days before the largest devaluation of the year on July 18 when the Dólar Blue reaches \$6.73 pesos/dollar with a premium of 47.9%. The Policy 4 surcharge capital control on March 18, 2013 appears as the rate spikes to \$8.75 pesos/dollar two days later while the official remains a constant \$5.09 pesos/dollar causing a premium of 71.9%. Finally, Policy 5, the exchange rate control, on April 25, 2013 took effect at the beginning of another noteworthy devaluation period that in two weeks reached its highest premium of 101.5% as we have already discussed.

Each of these policies is relevant because four of the five, Policies 1-4, represent forms of government mandated capital controls, and Policy 5 is a direct government intervention in artificially holding down the official exchange rate. Capital controls and manipulation of the official exchange rate limit the supply of currency legally accessible to citizens. Low legal supply drives up the demand for black market currency. In this particular case the currency demanded is US dollars. In order to meet this growing

demand for dollars, a black market springs up to supply it, illegally. When governments become aware of black markets for currencies, they try to put a stop to them. Usually a government's preferred method to tackling black markets involves more capital control policies. Through basic economic reasoning we can assume that more capital controls only further constrict the legal supply of currencies like dollars. Again, the black market continues to meet the demand for dollars because of tighter legal restrictions. In January 2013, analysts estimated that on a daily basis trade on the black market accounted for \$25 million to \$40 million dollars (Turner, 2013). In the next section, I give further reasoning to my hypothesis of the *cepo cambiario* policies causing the change in the premium by discussing the theory of purchasing power parity to calculate the implied inflation rates using black market exchange rates.

Section II: Black Market Exchange Rates, Purchasing Power Parity and Inflation

Since Néstor Kirchner's administration it has been public knowledge that official inflation data published by INDEC is skewed in Argentina. Though the inflation levels were reported lower than normal, the Argentine people could feel its effects by way of daily price levels. In 2010 capital flight increased significantly lowering the country's currency reserves and worsening the country's ability to pay its foreign debt. With the *cepo cambiario* policies in late 2011, we also see the emergence of the Dólar Blue black market for dollars. Black markets for dollars imply two key points. First, it implies that the official exchange overvalues the peso, and secondly, that the black market provides a source of dollars, which allow domestic citizens to avoid inflation taxes that can be levied

on domestic currency (Kharas and Pinto, 1988: 436). As a whole, the black market exchange rates better reflect people's expectations about the purchasing power of their currency. Using the theory of purchasing power parity we can use the black market exchange rate to calculate the implied inflation rate in Argentina. By plotting the calculated implied inflation rate with the officially reported inflation rate we can analyze how much the government is underreporting its statistics.

The theory of purchasing power parity (PPP) states that in equilibrium (*ceteris paribus*) the exchange rate between two countries' currencies equals the ratio of the countries' price levels. Essentially, this implies that the exchange rate between two currencies should naturally adjust so that a common basket of goods and services should cost the same in either country. The theory also predicts that an increase in a currency's domestic purchasing power will be associated with a proportional currency appreciation in the foreign exchange market and *vice versa*. In general, the theory highlights important factors behind exchange rate movements (Krugman et al., 2012: 386).

We note, however, that the PPP theory is just that, a theory and that it is in no way a perfect measurement. PPP captures a longer relationship between the exchange rate and price levels, so it is not always a perfect indicator of what is happening with implied relative price levels. We also note that in studying black markets, various questions arise as to their efficiency of indicators of market trends. Previous literature on black market exchange rates test and explain both their efficiency and their adjustment sensitivity to changes in relative prices under the PPP theory.

In his 1981 paper Gupta tests the efficiency of black market exchange rates. Gupta mentions that “it is quite conceivable that black markets may not be efficient because the information about prices and market participants is generally imperfect: the markets tend to be thin and often segmented, and the transactions costs...tend to be high.” Through several logarithmic tests Gupta finds that, despite these previously mentioned points of concern, the black market exchange rates found in India, Taiwan, and South Korea do satisfy these efficiency properties. The results were especially significant in the black markets in both Taiwan and South Korea in efficiently determining future changes in the official exchange rate. Essentially, Gupta proves that those previous concerns of market size and transaction costs are not important factors in a black market’s efficiency as indicators of market trends.

Bahmani-Oskooee and Tankui (2008) argue that in testing the PPP theory black market exchange rates are more accurate measures of the adjustment process to changes in relative prices than are official exchange rates. Using quarterly data from 12 developing countries to test the PPP, they found that not only is the PPP validated, but that in the long-run the speed of adjustment between relative prices and the exchange rate is faster when the black market exchange rate is used to test the PPP. Overall, even though we know that PPP might not be exact in the short run, these the two properties of efficiency and adjustment speed suggest that the black market exchange rate is a much more reliable indicator than the official exchange rate in predicting market trends.

Now, to express the PPP theory in an equation, let P_{AR} be the peso price of a commodity basket in Argentina and P_{US} the dollar price of the same basket in the United

States. For the purposes of this analysis the commodity baskets used are the respective consumer price indices (CPI). So, PPP predicts a peso/dollar exchange rate of:

$$E_{\text{pesos/dollar}} = P_{AR}/P_{US}.$$

For example, if the CPI was at \$1,000² pesos in Argentina and \$200 dollars in the United States, PPP predicts a peso/dollar exchange rate of \$5.00 pesos per dollar. We can now rearrange the equation:

$$P_{AR} = (E_{\text{pesos/dollar}}) * (P_{US}).$$

Now we have a different interpretation. The left side represents the CPI in pesos; the right side is the dollar price of the CPI multiplied by the peso price of a dollar. When PPP holds true, these two prices should be the same. Because black market rates are more reliable expectations of purchasing power, I use the Dólar Blue exchange rate in my calculations to find the implied monthly Argentine price level, which can then be used to calculate the implied monthly inflation rate.

For instance, using data from December 2012, we can calculate the Argentine CPI, P_{AR} . The monthly average Dólar Blue rate is \$6.54 pesos/dollar, and the US CPI (P_{US}) is \$231.32 dollars. Following the revised equation and multiplying the two together gives the P_{AR} , \$1513.59 pesos.

Once we have found the Argentine CPI we can calculate the implied monthly inflation rates by taking the difference of between the CPI of month 2 and month 1 and then divide by month 1:

² Note that the dollar sign (\$) is used to designate pesos as well.

$$(M_2 - M_1) / M_1 = i^*$$

M_2 represents the CPI of month 2, and M_1 represents the CPI of month 1. Following the equation gives us the implied monthly inflation rate, i^* .

Staying with the month of December 2012, we calculate its inflation rate by finding the difference between its CPI value of \$1513.59 pesos and November's CPI of \$1471.56 pesos then dividing the difference by November's CPI. The implied inflation rate for the month of December is 2.9% in comparison to the official records released by INDEC, which state that inflation only reached 1% that month.

I carried out this calculation and found the implied or "true" inflation rate for all 27 months in the data set. October 2011 served as the base year so the inflation is listed as zero. In **Figure 5** (page 52) we see the charting out of three different inflation rates. The first rate is the implied rate that we have just calculated; the second is the inflation rate implied by the official exchange rate. The third rate is the official rate as published by the Argentine government itself via INDEC. The official rate has a steady slope that appears to stay around 1% throughout the timespan. The calculated official rate shows more movement than the official with more activity in 2013. It does not coincide perfectly with the government's official rate because the PPP theory is not always perfect, but for the concerns of this paper the deviations are negligible. The calculated implied inflation rate, on the other hand, does present an interesting deviation. The line appears very volatile because it measures the various ups and downs that the black market experienced. We see months like January 2013 with 12.8% inflation and then in June we see -11.3%. These rises and peaks in the inflation levels coincide with months

that experienced noteworthy devaluations in the Dólar Blue exchange rate, like May and April 2012 and May 2013. Logically, drops in the inflation rate fall in months soon after sharp devaluations drop back down due to the fact that every surge in the black market exchange rate is immediately followed by a decline (Dornbusch et al., 1983). **Table 1.** below shows the chart version of the graphical inflation data as seen in **Figure 5.**

Table 1.

<u>Time</u>	<u>Calculated Monthly Implied Inflation Rate</u>	<u>Calculated Monthly Official Inflation Rate</u>	<u>Official Monthly Inflation Rate</u>
Nov	6.4%	0.9%	0.6%
Dec	-1.7%	0.9%	0.8%
Jan	2.9%	1.0%	0.9%
Feb	-0.5%	0.9%	0.7%
Mar	0.9%	0.4%	0.9%
Apr	3.8%	0.8%	0.8%
May	10.3%	1.2%	0.8%
Jun	7.3%	1.1%	0.7%
Jul	6.1%	1.7%	0.8%
Aug	2.2%	1.7%	0.9%
Sep	0.1%	1.6%	0.9%
Oct	-0.8%	1.0%	1.0%
Nov	1.2%	1.4%	0.7%
Dec	2.9%	1.9%	1.0%
Jan	12.8%	1.9%	1.1%
Feb	5.3%	1.0%	0.5%
Mar	4.4%	1.8%	0.7%
Apr	7.1%	1.1%	0.7%
May	7.9%	1.9%	0.7%
Jun	-11.3%	2.0%	0.8%
Jul	1.1%	2.1%	0.9%
Aug	8.4%	2.8%	0.8%
Sep	3.9%	2.8%	0.8%
Oct	4.9%	2.0%	0.9%
Nov	1.2%	3.1%	0.9%
Dec	-1.9%	5.6%	1.4%

This wide variation between the implied inflation rate and the official inflation rate is crucial to the central argument of this paper. Through the theory of purchasing power parity I have tested the black market exchange rate in Argentina to calculate the “true” rate of monthly inflation. As a result I have found that it is often much higher than what the government is officially reporting. This brings me back to my central hypothesis, are the policies of the *cepo cambiario* driving the premia in the Dólar Blue markets as they seem to be? If they are driving the premia then the policies are having detrimental effects on the Argentine economy through higher inflation and that the government is underreporting it. In other words, this analysis of the black market exchange rate can test whether the Fernández government is covering up the current state of its economy.

Section III: Methodology

Given the differences in the black market exchange rate and in the inflation rates, in my research it is my aim to determine if those five specific policies mentioned in Section I can explain the premium. If so, how much of this premium can be explained by these policies? My research will follow the structural model for black market dollars as proposed by Dornbusch et al. in their February, 1983 paper, “The Black Market for Dollars in Brazil”. The paper argues that while it analyzes the black market in Brazil with its uniquely Brazilian features, the general approach is compatible to any foreign exchange market. Dornbusch et al. lay out and emphasize the interactions of flow conditions of asset stocks associated with tourism and smuggling within the black market

to determine the black market premium on foreign exchange as well as the rate of change of stock of black dollars.

In the case of Argentina, we too will assume that the black market for dollars is a phenomenon unto itself with no effect on interest rates or on the official exchange rate. Through the model we see how black markets for dollars are composed of portfolio decisions and the relative flow of dollars from smugglers and tourists. The portfolio, or stock, of black market dollars is key in supporting the implication that changes in the financial market or flow market can cause a certain jump in the premium and then a resulting adjustment path for both. The model goes on to support that expectations of future currency devaluations can cause sudden spikes in the premium only to then appreciate, or lower, itself after the official devaluation takes place.

The cause of this premium can be tested using daily exchange rate data since the Dólar Blue's rise in October 2011 through December 2013. The exchange rate data are defined as the price of a U.S. dollar in pesos. The monthly observations refer to the monthly average price of a U.S. dollar in pesos. For my analysis there are two possible hypotheses. One hypothesis states that the premium is a random phenomenon with no connection whatsoever to official government action (i.e. government policies are exogenous). In this case all of the variation in the exchange rate premium would be explained by measureable seasonal fluctuations in the demand for dollars and random shocks to the demand for dollars or pesos. The second hypothesis states that the premium is caused by government intervention and capital controls. I use the following model to test these hypotheses:

$$(1). \quad Premium_t = \alpha + \delta'x_t + \beta'seasonal_t + e_t$$

This model implies that the premium (measured as the percentage difference between the black market and official rate) is a function of Policies 1-5 outlined above, x_t , seasonal fluctuations in the demand for dollars relative to pesos, $seasonal_t$, and random shocks in the exchange market, e_t . Here, δ' , is a vector of coefficients that measure the marginal effects of Policies 1-5. In addition, β' is a vector of coefficients that measure the marginal effects of seasonal fluctuations. Each policy in the matrix x_t is measured by a dummy variable that takes on a value of 1 beginning the day the policy is implemented and for every day thereafter. Prior to the policy implementation, the dummy takes on a value of zero. The coefficients collected in δ' therefore provide an estimate of the marginal effect of the policy.

If policy is completely unimportant then this premium is formed randomly. In this hypothesis the premium in equation (1) is only determined by a constant premium, random shocks, and possibly seasonal variations in the market. If policy does prove to be important, then $(\delta'x_t)$ will contribute significantly to the premium. The magnitude and statistical significance of the coefficients in δ' will determine the size and significance of policy.

Section IV: Estimation Results

Table 2.

R-squared = 0.92

Ind. Variables	Coefficient	P> t 	t
<i>Policy 1</i>	11.3	0.0	5.44
<i>Policy 2</i>	12.1	0.0	5.88
<i>Policy 3</i>	9.4	0.0	7.95
<i>Policy 4</i>	16.4	0.0	12.25
<i>Policy 5</i>	7.1	0.0	5.11
<i>Jan/Feb</i>	9.9	0.0	12.68
<i>Mar/Apr</i>	10.3	0.0	11.75
<i>May/Jun</i>	5.5	0.0	6.04
<i>Jul/Aug</i>	(-9)	0.3	(-1)
<i>Sep/Oct</i>	1.0	0.2	1.35
<i>Constant</i>	4.6	0.0	7.44

The empirical results are shown in **Table 2**. The table reports the regression analysis of the dependent variable, the premium, using Policy 1, Policy 2, Policy 3, Policy 4 and Policy 5, and controlling seasonal variables of two-month intervals, January/February, March/April, May/June, July/August and September/October. These variables help to explain a significant part of the variation in the premium.

As we can see the (P> |t|) variables being 0 signifies that all independent policy and most seasonal bimonthly variables are statistically significant at the 1%-level. From the constant term in the analysis we see that its coefficient is 4.6. This means that the existence of the black market premium implies a mark up of 4.6% over the official rate because of the inherent risk involved in illegal activity. Independent of the other variables in the model, the constant value states that the value of the black market exchange rate is 4.6% higher than the official exchange rate. The other independent

variables represent the marginal effects of each policy and each seasonal fluctuation on the premium. The seasonal monthly terms are relevant in terms of controlling variables for seasonal fluctuations.

The magnitudes of the coefficients on the policy variables are of great importance. The coefficients of the control policies show the marginal effect that they have on the premium. The first capital control used is the individual capital control, also known as Policy 1. It increases the already constant premium rate of 4.6% by 11.3 percentage points. The next capital control on travel, Policy 2, further increases the 15.9% premium by 12.1 percentage points. Policy 3's pension capital control increases it by 9.4 percentage points, and Policy 4's surcharge capital control brings up the rate 16.4 more percentage points. Finally, Policy 5's exchange rate control causes another increase of 7.1 percentage points. It is interesting to note that even though we controlled for the fact that the other four policies were already in place, this 7.1 coefficient means that on its own Policy 5 still increases the premium by 7.1 percentage points. In total, the point estimates imply that these policies have increased the black market premium by 56.3 percentage points.

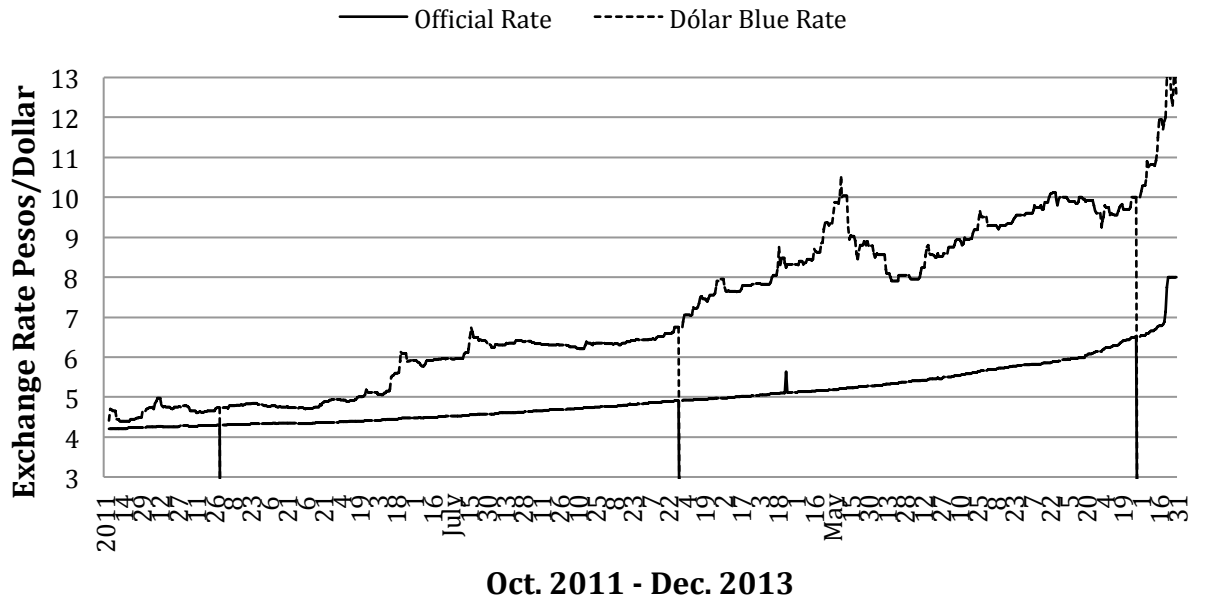
Because I have daily data on both exchange rates as well as the dates that these five policies were implemented, my estimation shows that each policy is in fact statistically significant, and according to the R-squared statistic 92% of the variation in the black market premium is explained by this model.

Chapter 4: **Conclusion**

This paper has developed a model for the Dólar Blue black market for U.S. dollars in Argentina. Since the implementation of Menem's Convertibility Plan, which tied the peso to the dollar at a one to one ratio, the difficult Argentine financial crisis of 2001, and the election of the Kirchners to the presidency, we have seen that U.S. dollars have played a significant role in Argentine economics. Additionally, we have seen how the government has recently been covering up and manipulating its true inflation data. The model developed in this thesis emphasizes the efficiency of black market exchange rates in better determining the true purchasing power parity of a currency and in predicting implied, more reliable inflation rates. The emergence of the Dolar Blue exchange rate conspicuously coincides with the implementation of certain economic policies by the Argentine government. The central hypothesis stated that the restrictive policies under President Cristina Fernández de Kirchner's government program known as the *cepo cambiario* are driving up the premium of the Dólar Blue exchange rate. My aim was to test whether or not five specific policies of the Fernández *cepo cambiario* affect the black market premium, and if so, to determine how much of an effect each has. Through a regression analysis we found that five policies of the *cepo cambiario* as well as a few seasonal factors contribute significantly to the premium. Because of the characteristic risk involved in being an illegal exchange rate market, the test shows that the black market exchange rate unto itself would be 4.6 percentage points higher than the officially reported exchange rate. Taking into account Policies 1-5 and seasonal factors, we see that 92% of the total variation in the Dólar Blue premium is caused by these factors. Overall, this provides an overwhelming confirmation of the hypothesis that the

cepo cambiario policies are indeed the principle factors in driving up the black market premium.

**Figure 1.
Entire Dólar Blue Timeline**



**Figure 2.
2011 Daily Pesos/Dollar Exchange Rates:
Oct. - Dec.**

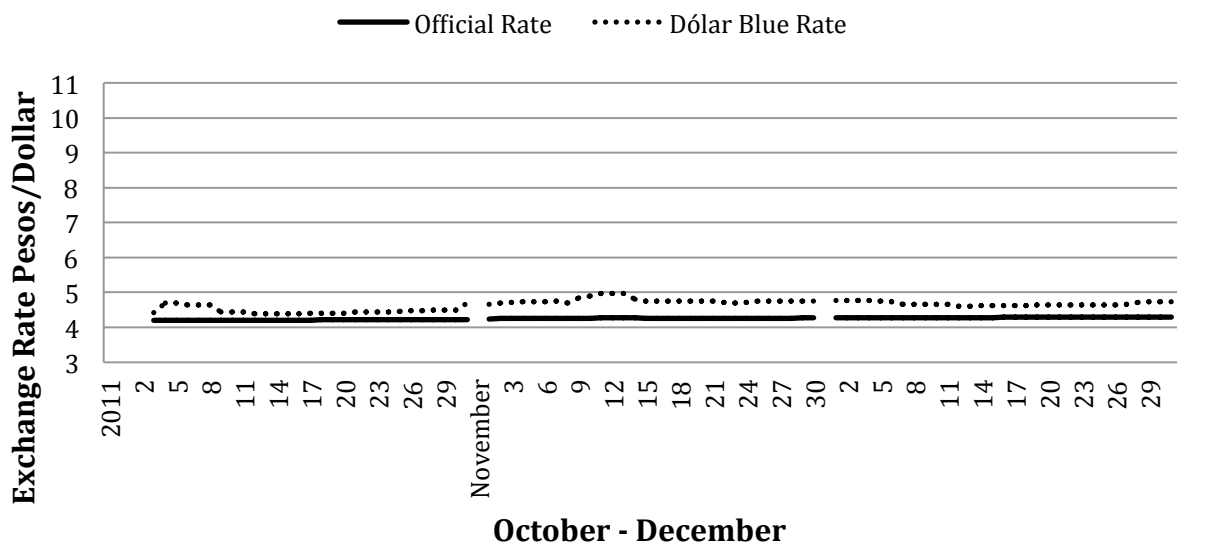


Figure 3.
2012 Daily Pesos/Dollar Exchange Rates

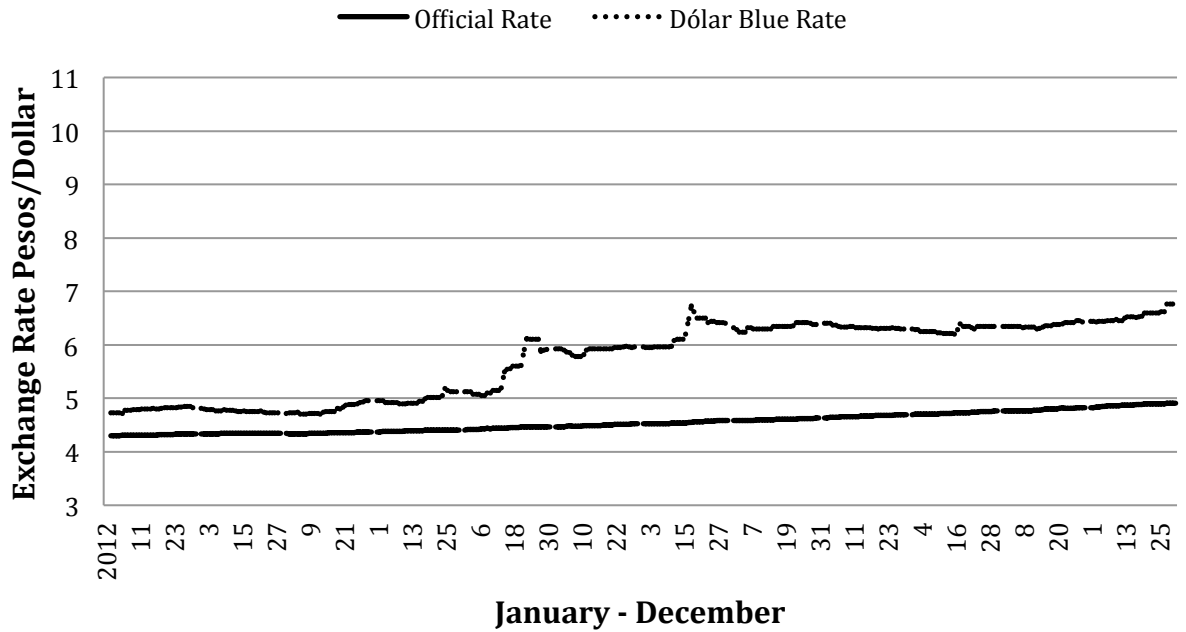


Figure 4.
2013 Daily Pesos to Dollar Exchange Rates

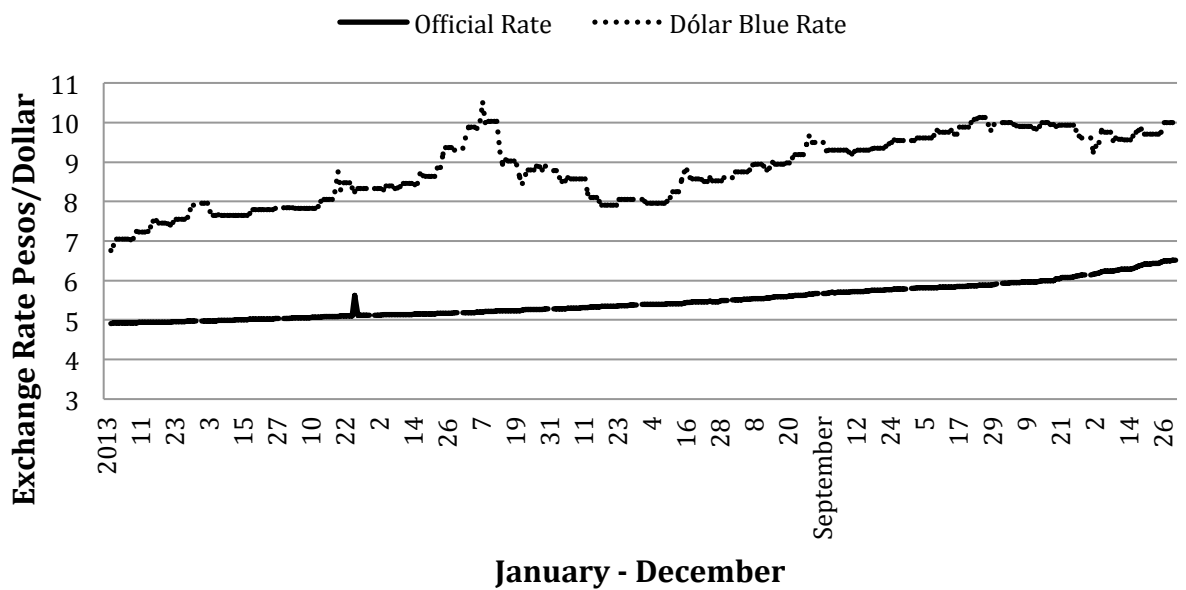
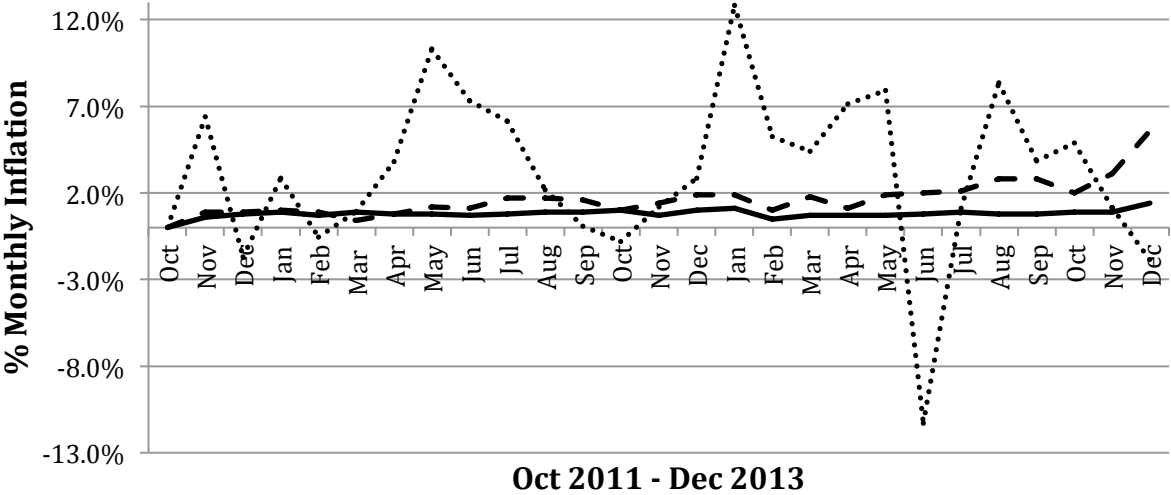


Figure 5. Monthly Inflation Levels

..... Calculated Monthly Implied Inflation Rate - - - Calculated Monthly Official Inflation Rate
 — Official Monthly Inflation Rate



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