An Analysis of a High School Dropout in the United States

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Abstract:

The study explores the socioeconomic factors that lead to a student dropping out of high school. Unlike other papers this study focuses on the whole United States and the three primary ethnic groups within the country. Data from the National Center for Education Statistics, is used to investigate the crisis facing the future of the American economy across all fifty states. The results show that socioeconomic differences are predictive in the probability of a high school student dropping out prior to graduation.

JEL Classification: H52

Keywords: Dropout Crisis

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1.0 Introduction

The decision to drop out of high school, while a tragic one, is influenced by a number of factors, which the study will explore later. It is first important to consider the individual ramifications of this life altering decision. As mentioned before, today many jobs held by individuals without a high school diploma are becoming automated or going overseas. This process is leaving less-educated Americans with minimal options for supporting themselves and their families. President Obama asserted that "a High School diploma is not enough," and urged each American to commit to at least one year or more of higher education or career training, whether it be a community college, a four year school, vocational training or an apprenticeship. This call to a more educated America is certainly idealistic in nature, however is it one being heard by the American public?

The Organization for Economic Co-Operation and Development has found that the US ranks eighteenth in high school graduation rates (OECD, 2007). Organizations such as City Year partner with public schools and work to address the dropout crisis based on three "Early Warning Indicators;" behavior, classroom performance, and attendance. This work occurs when students are enrolled in school, and can be implemented even as early as the third grade. Previous literature suggests that are socioeconomic factors that lead to a high school student's decision to drop out.

This study builds on previous literature and examines the socioeconomic factors that lead to a student's decision to drop out of high school. This analysis could lead to intervention, in the form of education, and economic assistance, at an even earlier age than organizations like City Year intervene, and could result in a large benefit to American society. The study successfully fills the void in papers that explore the issue on a nationwide basis. While, similar studies have

been completed in Canada and for individual states, this study looks at the US school system and the dropout crisis which plagues not only the schools, but the economy as a whole.

The rest of the paper is organized as follows: The trends of the High School dropout crisis are examined in section 2. Section 3 gives a brief literature review. Section 4 outlines the empirical model, Data and estimation methodology are then discussed. Finally, section 5 presents and discusses the empirical results. This is followed by a conclusion in section 6.

2.0 Trend of the U.S. High School Dropout Crisis

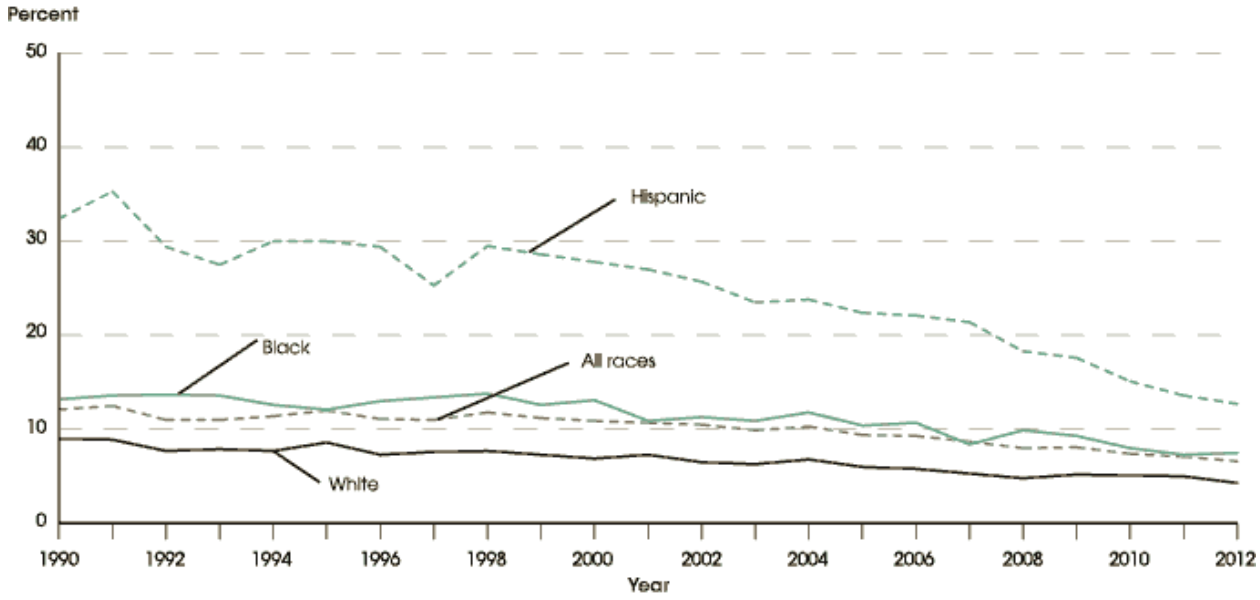
For the purpose of this paper a high school dropout is a 16-24 year old who is not enrolled in school and has not earned a high school credential. This could either be a high school diploma or an equivalency credit such as a GED certificate. From 1990 to 2011 the overall dropout rate in the United States has declined from 12 percent to 7 percent.

What are the consequences of this life-changing decision? The decision to drop out is related to a number of negative consequences. According to Yeboah et al. (2010) the average annual income for a high school dropout in 2005 was $17,299 compared to $26,933 for a high school graduate, a difference of almost $10,000. Additionally, if that high school graduate goes on to earn a bachelor's degree Yeboah et al. (2010) has found that he or she will earn an average of $52,671 a difference of nearly $35,000. All in all, according to Amos (2008) over a lifetime, a college graduate will earn, on average, $1 million more than a high school graduate. While this loss is life-altering for an individual, the decision to dropout also carries loses to the economy. PBS.org (2012) estimated the unemployment rate of high school dropouts to be 12 percent, compared to the national unemployment rate at the time of 8.1 percent. As it is the purpose of this paper to explore the socioeconomic factors that lead to a high school dropout, it is important to examine the racial differences in the high school dropout rate.

The paper will explore three racial groups: whites, Hispanics, and blacks. Figure 1 is a graphical representation of the high school dropout rate among 16-24 year olds corresponding to these three racial/ ethnic groups. In each of the three categories the overall dropout rate has declined. For whites the rate fell from 9 percent to 5. Similarly, the rates for blacks have dropped from 13 percent to 7. Finally, the rate for Hispanics has seen the biggest change falling from 32 percent in 1990 to 14 percent in 2011. While the gap between blacks and whites is not

measurably different, the rate between whites and Hispanics has closed from 23 percentage points in 1990 to 9 in 2011.

Figure 1: Status of dropout rates, by race/ethnicity among 16-24 year olds: 1990 through 2012



Source: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS)

3.0 Literature Review

There is no argument that the economy is becoming more complex, automation is taking over, and less-skilled workers are becoming obsolete. The US Department of Labor estimates that 90 percent of new high-growth high-wage jobs will require some post-secondary education, in comparison to decades past. The key difference is during this time even a high school dropout could find work in the manufacturing or agricultural sectors that would support a family in a middle-class lifestyle (Yeboah et al., 2010).

The definition of a high-school dropout may seem straightforward, but is more formally defined as "any student who leaves school for any reason before graduation or completion of a program of studies without transferring to another elementary or secondary school." (State Board Policy (HSP-Q-001)) When a school is unable to document a former student's enrollment in another US school, they are forced to report that student as a dropout.

As previously mentioned the United States ranks eighteenth in high school graduation rates and fifteenth in college graduation rates (OECD, 2007). According to Yeboah et al. (2010), graduation rates are a fundamental indicator of whether or not the nation's public school system is doing what it is intended and funded to do: engage, enroll, and educate youth to be productive members of society. However, they are more than just a bottom-line for schools, they are critical predictors for individual achievement and have ramifications for society at large. Yeboah et al. (2010) has found that North Carolina falls in the bottom 10 states for the percentage of students graduating. During the 2006-2007 school year over 22,000 students in grade 9-12 dropped out of school in North Carolina. The cost includes $169 million annually in taxes and public spending.

Educated workers are needed to maintain productivity, spur innovation, and guide the economy into the 21st century. The high school dropout crisis is more than just an economic

issue, it is also a pressing social issue, communities need well-educated citizens to participate in government and add cultural and social value. Individuals who fail to graduate from high-school are not only a great disadvantage in finding a job, they are also less healthy on the whole, and more likely to become incarcerated. Additionally, high-school dropouts are at a higher risk of becoming parents at a younger age. This is particularly alarming, because they are overall less likely to be able to support a child. According to Amos (2008), even more tragic, their children are more likely to become high school dropouts themselves, as are their children's children, and so on, in a possibly endless cycle of poverty.

Allensworth and Easton (2005) have found research on dropping out has shown that the decision to persist in or leave school is affected by multiple contextual factors-family, school, neighborhood, peers interacting in a cumulative way over the life course of a student. It is important to examine the school and what they may be doing to affect the dropout crisis. A school has control of many factors that could lead to a student dropping out, such as; teacher quality, class size, and student discipline. However, some of these factors, as noted by Yeboah et al. (2010) such as school size, location, the percentage of English Language Learners (ELL), and the demographic make-up of the school are relatively unchanging for the most part. Consistent with Allensworth and Easton (2005), Finn (1989) found that low participation in school activities or early school failure leads to low self-esteem, behavioral problems, and alienation from school. A later study Finn (1993), added that "the likelihood that a youngster will successfully complete 12 years of schooling is maximized if he or she maintains multiple, expanding forms of participation in school-relevant activities." This seems to be another area where schools have some control of the dropout crisis, through the encouragement of participation in extracurricular activities.

Peck and Mills (1987) has noted that "the issue of dropping out and dropout prevention cannot be separated from issues affecting our total economic and social structure. These issues include poverty, unemployment, discrimination, the role of the family, social values, the welfare cycle, child abuse, and drug abuse." On a more micro-level, Yeboah et al. (2010) has found that if all of North Carolina's residents of working age had obtained at least a high school diploma, total earnings in North Carolina in 2005 would have been $7.5 billion higher. This has ramifications not only for state tax revenue, Yeboah et al. (2010) calculated a cost of $712 million annually, but also productivity, innovation, and GDP growth. Additionally, dropouts are more likely to be unemployed and depend on programs such as Medicaid and welfare. More specifically, Gottlob (2007) has found that dropouts increase Medicaid by $155 million each year. Yeboah et al. (2010) has found that the unemployment rate in North Carolina is 10% higher for high school dropouts. As mentioned before, dropouts are twice as likely to be incarcerated.

The previously mentioned study, Yeboah et al. (2010), attempted an econometric analysis of the dropout crisis specific to the state of North Carolina on the county level. The study found that county characteristics are significant when examining the crisis. While income level, was not found to be significant, minority population, gross tax revenue, and poverty are all significant and affect the state as a whole.

Lofstrom (2010) notes that family background, income, and parental education are frequently found to affect children's schooling outcomes. Research insofar, according to Hanushek (2006) has failed to find a consistent relationship between school resources and student achievement. Next, the study looks at the ethnic differences in the decision to drop out of high school. The findings of Lofstrom (2010) are consistent with Cameron and Heckman (2001) that stated family factors such as; family composition, parental education, and family income

explain all of the gap in graduation rates between whites and African-American and most of the gap between whites and Hispanic-Americans. What is noteworthy is when you control for differences in family background, whites are less likely to graduate high school than blacks and Hispanics.

Perreria et al. (2006) took it a step further and postulated that ethnic differences in dropout rates are explained by differences in human, cultural, school, and community capital. Lofstrom (2010) found that immigrant students are more likely to drop out of school, but more importantly found that this group does significantly influence Hispanic's, as an ethnic group, overall dropout rate. More specifically, native born Hispanics are 13% percent more likely to drop out of high school compared to whites. The study went on to find that African-Americans are 12.5% more likely to drop out when compared to whites. These findings are consistent with the overall idea that minority students are more likely to come from an economically disadvantaged household. Regardless of race, Lofstrom (2010) found that an economically disadvantaged student is 12% more likely to drop out of school than a well-off student. The study then held economic factors, and looked at the ethnic-gap between whites and minorities. It was found that, holding economic factors constant, Hispanics are 7% more likely to drop out than whites, and blacks are 8% more likely to drop out than whites. These results suggest that half the Hispanic/white dropout probability is explained by poverty, which in turn explains nearly one third of the black/ white dropout probability. Next, Lofstrom (2010) explored the issue of English proficiency. Limited English proficiency was found to be a key contributor to the Hispanic/ white dropout probability, which when relevant variables where added to the regression dropped to 4.4%.

4.0 Data and Empirical Methodology

4.1 Data

This study uses cross sectional data from all 50 states and the District of Columbia for the school year 2009-2010. Data were obtained from the National Center for Education Statistics, more specifically the Digest of Education Statistics. Summary statistics for the data are provided in Table 1.

Table 1: Variable Description and Data Source

Acronym	Description	Data Source
DROP	Total dropouts in the school year 2009-2010 per state	National Center for Education Statistics (NCES)
DROPW	Total dropouts per state who are white	National Center for Education Statistics (NCES)
DROPB	Total dropouts per state who are African-American	National Center for Education Statistics (NCES)
DROPH	Total dropouts per state who are Hispanic	National Center for Education Statistics (NCES)
REVENUE	Elementary and secondary education total revenue per state	National Center for Education Statistics (NCES)
PCAPINC	Per Capita Income in 1999 per state	National Center for Education Statistics (NCES)
EXPEND	Elementary and secondary education total expenditures per state	National Center for Education Statistics (NCES)
POVSTAT	Poverty Status in 1999-Income in 1999 below poverty level	National Center for Education Statistics (NCES)
GR8MTH	Grade 8 math score on the National Assessment of Educational Progress	National Center for Education Statistics (NCES)
PTRATIO	Average Pupil to Teacher Ratio per state	National Center for Education Statistics (NCES)
GR8READ	Grade 8 reading score on the National Assessment of Educational Progress	National Center for Education Statistics (NCES)

DEGREES	Post-Secondary degrees or certificates awarded per state	National Center for Education Statistics (NCES)

4.2 Empirical Model

Following Loftstrom (2010) this study adapted and modified the model to look at the Total Dropouts in the United States, and then focus in on the Dropouts by ethnicity for whites, blacks, and Hispanics. I have chosen to dissect the matrices used by Lofstrom (2010) and rewrite them as independent variables. The four separate models can be written in order, with the first being Total Dropouts, the second being Dropouts amongst whites, the third being Dropouts amongst blacks, and the final model being Dropouts amongst Hispanics, as follows:

1. $DROP_i = \beta_0 + \beta_1 PTRATIO_i + \beta_2 REVENUE_i + \beta_3 EXPEND_i + \beta_4 DEGREES_i + \beta_5 PCAPINC_i + \beta_6 POVSTAT_i + \beta_6 GR8MTH_i + \beta_7 GR8READ_i + u_i$

2. $DROPW_i = \beta_0 + \beta_1 PTRATIO_i + \beta_2 REVENUE_i + \beta_3 EXPEND_i + \beta_4 DEGREES_i + \beta_5 PCAPINC_i + \beta_6 POVSTAT_i + \beta_6 GR8MTH_i + \beta_7 GR8READ_i + u_i$

3. $DROPB_i = \beta_0 + \beta_1 PTRATIO_i + \beta_2 REVENUE_i + \beta_3 EXPEND_i + \beta_4 DEGREES_i + \beta_5 PCAPINC_i + \beta_6 POVSTAT_i + \beta_6 GR8MTH_i + \beta_7 GR8READ_i + u_i$

4. $DROPH_i = \beta_0 + \beta_1 PTRATIO_i + \beta_2 REVENUE_i + \beta_3 EXPEND_i + \beta_4 DEGREES_i + \beta_5 PCAPINC_i + \beta_6 POVSTAT_i + \beta_6 GR8MTH_i + \beta_7 GR8READ_i + u_i$

$DROP_i$ is the total Dropouts in the United States in school year 2009-2010, given specific state i. The model uses data from all fifty states and the District of Columbia. The status "dropout" accounts for 16-24 year olds who are not enrolled in school and have not earned a high school equivalency credential. $DROPW_i$ is the total dropouts in the school year 2009-2010 for white individuals in a given state i. $DROPB_i$ is the total dropouts for school year 2009-2010 in a specific state i for African Americans. $DROPH_i$ is the total dropouts in a specific state i for Hispanics in the 2009-2010 school year.

Independent variables, explanations of these variables, and expected signs can be found in Table 2 and Table 3. $GR8MTH_i$ and $GR8READ_i$ are the mean score on the National Assessment of Educational Progress for 8th grade students in each specific state i. These variables serve as a measure of achievement in US schools in a given state. The next three variables; $EXPEND_i$, $REVENUE_i$, and $PTRATIO_i$, serve as school characteristic variables in a given year for schools in the United States. $EXPEND_i$ and $REVENUE_i$ capture the amount of financial resources states devote to their educational facilities. $PTRATIO_i$ captures the amount of attention students in a given state receive from teachers. $POVSTAT_i$, attempts to capture the amount of individuals below the poverty line in a given state i. This variable is of particular interest to the regression, as previous literature suggest that it has predictive power over the total dropouts. $PCAPINC_i$ is another variable that attempts to capture the financial status of individuals in a particular state i. Contrary to the Poverty Status variable, this variable is not expected to have predictive power on the total dropouts, however theoretically it has a place in the regression. Finally, $DEGREES_i$ attempts to capture the importance of education that a specific state places on education, using the total number of post-secondary degrees awarded given a specific state i.

Table 2 Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
DROP	51	10083.1	14380.83	680	92874
DROPW	51	3763.588	3362.571	27	16436
DROPB	51	2691.902	3350.84	8	12660
DROPH	51	2943.863	8282.167	0	55187
PTRATIO	51	15.369	2.830	10.75	23.4
REVENUE	51	11800000000	14000000000	1260000000	67900000000
EXPEND	51	11800000000	14100000000	1200000000	67600000000
DEGREES	51	78228.67	84400.75	4625	440163
PCAPINC	51	20922.12	3028.888	15853	28766

POVSTAT	51	563750.1	789264.6	54775	4706130
GR8MTH	51	282.412	8.547	254	299
GR8READ	51	262.059	6.898	241	273

Table 3: Variable and Expected Signs

Acronym	Variable Description	What it Captures	Expected Sign
DROP	Total dropouts per state	Dropouts in each state	
DROPW	Total dropouts who are white per state	Dropouts per state who are white	
DROPB	Total dropouts who are African-American per state	Dropouts per state who are African American	
DROPH	Total dropouts who are Hispanic per state	Dropouts per state who are Hispanic	
REVENUE	Elementary and secondary education revenue per state	A measure of resources devoted to education per state	-
PCAPINC	Per Capita Income in 1999 per state	An indicator of wealth per state	-
EXPEND	Elementary and secondary education expenditures per state	A measure of resources devoted to education per state	-
POVSTAT	Poverty Status in 1999- Income in 1999 below poverty level	Poverty measure per state	+
PTRATIO	Pupil/Teacher Ratio	Attention devoted to an individual student per state	+
GR8MTH	Grade 8 Math score per state	A state wide educational achievement indicator	-
GR8READ	Grade 8 Reading score per state	A state wide educational achievement indicator	-
DEGREES	Post- Secondary degrees or certificates awarded	An indicator of a state's emphasis on education	-

5.0 Empirical Results

The empirical estimation results are presented in Tables 4. They are organized as follows; DROP looks at the total dropouts, DROPW looks at the dropouts amongst whites, DROPB looks at the dropouts amongst African Americans, and DROPH looks at the dropouts amongst Hispanics.

Table 4: Regression Results for US Dropouts

	DROP	DROPW	DROPB	DROPH
CONSTANT	27663.51 (31671.54)	-5868.127 (11604.01)	29358.81 (11817.61)	1611.973 (22771.02)
PTRATIO	728.31** (302.525)	326.2897*** (110.8408)	-62.25475 (112.8811)	345.5781 (271.5075)
REVENUE	0.00000448** (0.00000186)	-0.000000126 (0.000000683)	0.000000349 (0.000000696)	0.00000343** (0.00000134)
EXPEND	0.00000424** (0.00000186)	-0.0000000953 (0.000000681)	-0.000000180 (0.000000693)	-0.00000331** (0.00000134)
DEGREES	0.0409943 (0.030836)	0.0432813*** (0.0112979)	0.0180813 (0.0115058)	-0.0231001 (0.0221703)
POVSTAT	0.0083137*** (0.0021997)	-0.0687817 (0.0947625)	-0.0013995* (0.0008208)	0.0097847*** (0.0015815)
PCAPINC	-0.0394734 (0.2586411)	-0.0687817 (0.0947625)	-0.118816 (0.0965068)	0.1265937 (0.1859563)
GR8MTH	-89.18071 (255.3316)	-112.4092 (93.54992)	-83.59725 (95.27192)	82.47573 (183.5769)
GR8READ	-51.63692 (322.0555)	134.9923 (117.9966)	-8.558347 (120.1686)	-133.5071 (231.5496)
R^2	0.9006	0.7559	0.7451	0.8451
F-Statistic	47.57***	16.26***	15.35***	28.64***
Number of Observations	51	51	51	51

Note: *** , **, and * denotes significance at the 1%, 5%, and 10% respectively. Standard errors in parentheses

For total dropouts, four independent variables were found to be statistically significant. Also noteworthy, is that two of these variables, *PTRATIO* and *POVSTAT,* had the expected sign predicted. Both *EXPEND* and *REVENUE*, had the opposite sign of what was predicted. Theoretically, this does not make sense however a more careful look at the impact of the

estimated coefficient, proves that the variable is so small that it does not have a strong influence on the dependent variable.

In the regression for white dropouts, there are two variables found to have statistical significance. *PTRATIO*, has the expected sign predicted, however it has a smaller impact on the white dropouts than it had on the total dropouts in the previous regression. The second variable of 1% significance is *DEGREES,* which has the opposite sign of what was expected. *DEGREES* was included in the regression to capture the emphasis of education in a given state i. The results of this regression show that with one additional post-secondary degree awarded, total dropouts increase by 0.04. Furthermore, with 25 additional post-secondary degrees awarded there will be one additional white dropout. Theoretically, this estimated coefficient is troubling, and does not follow the trend of previous literature. Perhaps, the sign is due to the increased expectations of students to complete their high-school education, and move on to a post-secondary facility and the added pressure that comes along with this, forcing students to drop out and pursue other initiatives.

The regression for African-American dropouts proved to be the least statistically significant, with only one variable *POVSTAT*, of 10% significance. This variable also was of the opposite sign of what was expected. Meaning that with more individuals below the poverty, the less number of African American dropouts. This result, while counterintuitive, could mean that individuals below the poverty line are being targeted, in the form of increased attention and financial resources, and remaining in school to complete their diploma.

Finally, the regression for Hispanic dropouts yielded three statistically significant variables, two of which, *EXPEND* and *POVSTAT*, had the expected sign. *REVENUE* had the

opposite sign of that which was predicted, but like in the total dropout regression is so small in scope that it does not influence the number of Hispanic dropouts.

If this study were conducted again, it should sample more school years than the 2009-2010 school year it was limited to. This would yield more statistically significant results, and could have important policy implications. Additionally, another variable would be considered for poverty status, perhaps free-lunches provided, this would better capture individuals who are below the poverty line and attending school. Finally, conducting this study on the national level proved extremely difficult to capture school characteristics, like funding and amount of taxes going to education. It is no surprise that other papers looked at a specific state, as this provides a better analysis of a high school dropout.

When considering whether or not to drop variables, the study closely examined the F-Statistics for each regression, which were significant at a 1% level. This means that the independent variables that were chosen, collectively have in impact on the four dependent variables. Also, the R-Squared values ranged from 0.75 to 0.90, which showed that the regression was a good fit.

6.0 Conclusion

In summary, poverty status and total expenditures on schooling were the most important variables in predicting a high school dropout. States should carefully consider the ramifications of cutting budgets on education. This study shows that these ramifications include more high school students dropping out, which will strain the economy of that state in future years, with the likelihood of a dropout being unemployed significantly higher than individual's who complete their high-school education. Pupil/ teacher ratio was also a significant predictor of total dropouts and white dropouts. It was the study's aim that this variable shed light on the dropout crisis as theoretically more individualized attention in the form of specialized tutoring and interactions with teachers would lead to better outcomes for a student.

This study came to same conclusion as prior works, such as Yeboah et al. (2010), which found that income level was not statistically significant to the decision to drop out of high school. Policymakers should take this into consideration, when attempting to alleviate the dropout crisis. Instead of looking at something like per capita income, in a given county and school district, poverty status should be considered, as it has a stronger effect on the number of dropouts.

As mentioned in the introduction, organizations such as City Year Inc. are already attempting to address the crisis at a national level. A school system investing in City Year would increase total expenditures to education, and improve the pupil/ teacher ratio in that school, both of which are the most significant variables to predicting dropouts. City Year operates in 25 major cities in the United States, and therefore would be reaching a sizeable portion of the population who are below the poverty level.

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Probability of Dropping out of High School

Matthew Walsh

Economics 414

February 24th, 2014

Previous Research

- Family background, income and parental education are factors frequently found to affect children's schooling outcomes Haveman and Wolfe (1995)
- They find that family factors (e.g. family composition, parental education, family income) explain all of the black-white gap in high school graduation rates and most of the Hispanic-white gap. Cameron and Heckman (2001)
- Controlling for differences in family background and AFQT, Hispanics and African-Americans are found to be more likely than whites to graduate high school. Cameron and Heckman (2001)

Models

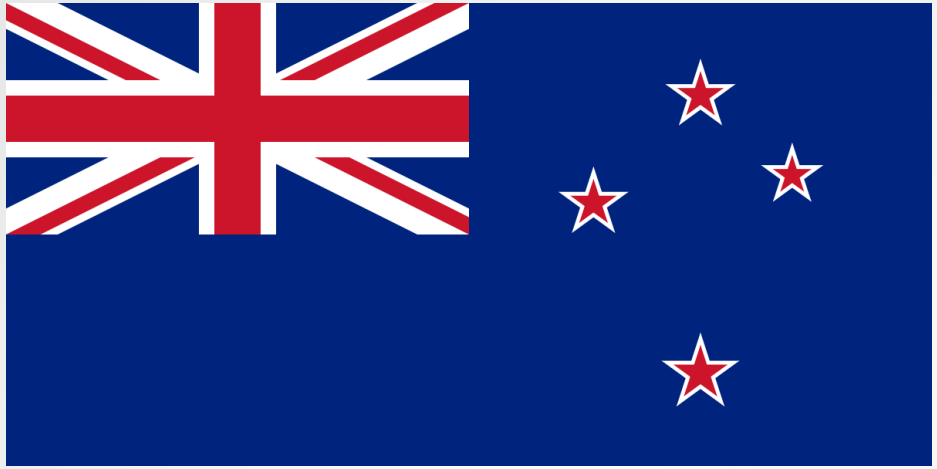
- Lofstrom (2007)
- $Y=\beta_0+\beta_1$ Hisp$+\beta_2$ Black $+\beta_3$ Asian$+\beta_4$ X
- X= Matrix containing student characteristics
  - Economically disadvantaged
  - English as Second Language
  - Held back in grade before 15
  - Immigrant
- Corresponding Probability Model
- $P(y=1|X,$ Race/ Ethnicity$) =\beta_0+\beta_1$ Hisp$+\beta_2$ Black $+\beta_3$ Asian$+\beta_4$ X

Data

- http://nces.ed.gov/ccd/drp7yr.ASP
- 1991-92 through 1996-97
- State and district dropout and completion data and rates
- Panel Data for all 50 States

What I intend to find

- What kind of student (race, socioeconomic status) is most likely to drop out?
- Are certain states lagging behind when it comes to the issue of high school dropouts



New Zealand

Matthew Walsh

April 30th, 2014

Macroeconomic Case Studies

The Country At a Glance

- GDP (Current US $): 171.3 Billion (2012)
- Population (Total): 4.433 Million (2012)
- GNI per capita, PPP (Current International $): 32,620 (2012)
- GDP growth (Annual %): 3 (2012)
- Exchange Rate (US$ per NZ$): 0.8281 (2013)
- Unemployment Rate (%): 6.6
- Inflation, consumer prices (annual %): 0.9 (2013)
  - 1st Country to use Inflation Targeting as Monetary Policy
- Current account deficit (% of GDP): 5.5
- Life Expectancy at birth, total (years): 81 (2012)
- Member of the Organization for Economic Co-Operation and Development (OECD)

GDP by Production (2013)

- Manufacturing: 13.3%
- Rental, hiring, and real estate services: 12.4%
- Prof, scientific, technical, admin, and support: 8.7%
- Information media and telecommunications: 6.9%
- Wholesale trade: 6.7%
- Construction: 5.5%
- Health Care: 5.1%
  - Versus US: 17.2%

- Primary Industries: 6.0%
- Goods-producing Industries: 21.0%
- Service Industries: 64.8%

International Trade

Exports:

Australia:	20.2%
China:	18.0%
USA:	8.9%
Japan:	6.1%

- Chief Exports:
  - Dairy Produce: 24.9%
  - Meat and edibles: 11.4%
  - Wood: 8.0%
  - Mineral Fuels: 4.1%
  - Fruit and nuts: 3.2%

Imports:

China:	17.4%
Australia:	14.0%
USA:	9.2%
Japan:	6.2%
Malaysia:	4.6%

- Chief Imports:
  - Mineral Fuels: 17.0%
  - Mechanical Machinery and Equipment: 12.6%
  - Vehicle Parts and Accessary: 11.6%
  - Electrical Machinery and Equipment: 8.2%
  - Plastic materials: 3.7%

Current State of Economy

- Fertile Soils and excellent growing conditions spur agriculture
  - World Bank estimates exports account for 30% of GDP
- Low inflation and flexible exchange rate
- Closely tied to Australian economy
  - Faired better than most during global financial crisis
- NZX 50 (Benchmark stock index): Rose 25% in 2012

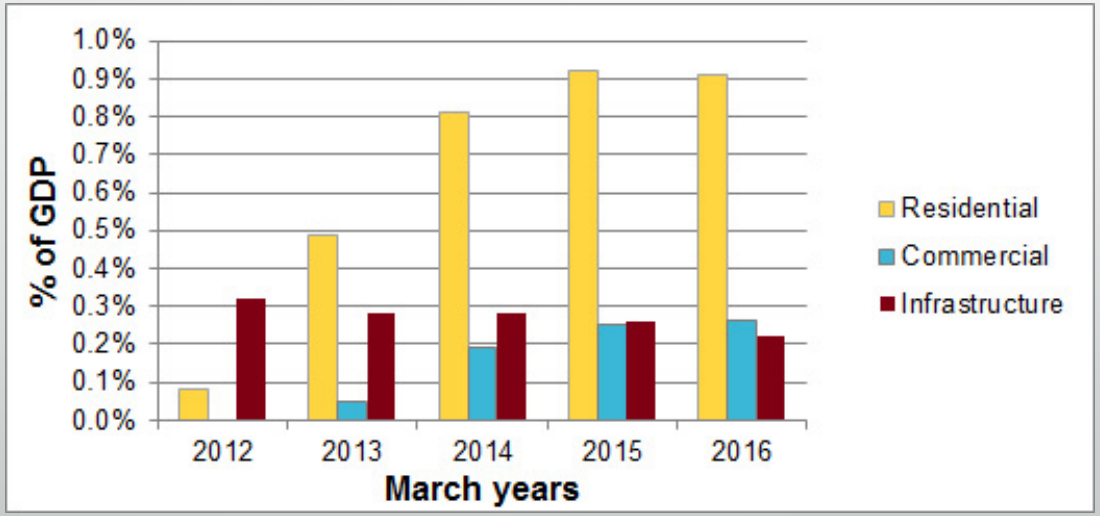
  Reporting best year in 2013
- After a 2% decline in 2009 achieved 1.7% growth in 2010, 2% in 2011, and 3% in 2012
  - Helped by exports and strong demand from trade partners China and Australia

2011 Christchurch Earthquake

- February 21st, 2011 natural disaster that struck the nation's 2nd largest city
  - 6.3 magnitude centered 6 miles south-east of the city
  - Six months after a 7.1 magnitude earthquake
- 185 people killed, half the deaths were recorded due to a building collapse
  - Canterbury Television Building
- State of emergency declared that last until April 30th
- April 2013 estimate of $40 billion in cost, originally estimated at $15 billion
  - 1,000 buildings in the city are expected to be demolished
  - 10,000 homes in the surrounding suburbs would need to be demolished
  - Parts of Christchurch cannot be rebuilt on
- Economist have estimated it will take 50-100 for New Zealand to completely recover

Rebuilding Effort

- March 29th 2011 Prime Minister John Key established the Canterbury Earthquake Recovery Authority (CERA)
  - 5 year effort (expected)
- Government organization Earthquake Commission (EQC) levies policyholders to cover a major part of earthquake risk
  - Further limits its own risk by taking out cover with large reinsurance companies
- Commercial buildings are covered by private insurance companies



Policy Recommendations and Conclusion

- Total employment in the Canterbury region has decreased by 26,800
  - People have left the area or workforce
- Need to retain population and commercial sector, keeping Christchurch productive
  - Government responded with interest-free student loans
  - Working for Families tax credits
- Leverage construction industry: 4,500 increase in jobs (In 2011 alone)
  - Attract workers to the region
- Carefully monitor fraud, serves as economic waste
- Attract investment, devastating disaster, but a chance to rebuild even stronger
  - Convention centers and stadiums
- Insurance pay-outs make this a slow process
- Ethical considerations: people are not statistics, need to be cared for

An Analysis of a High School Dropout in the United States

Matthew Walsh

April 23rd, 2014

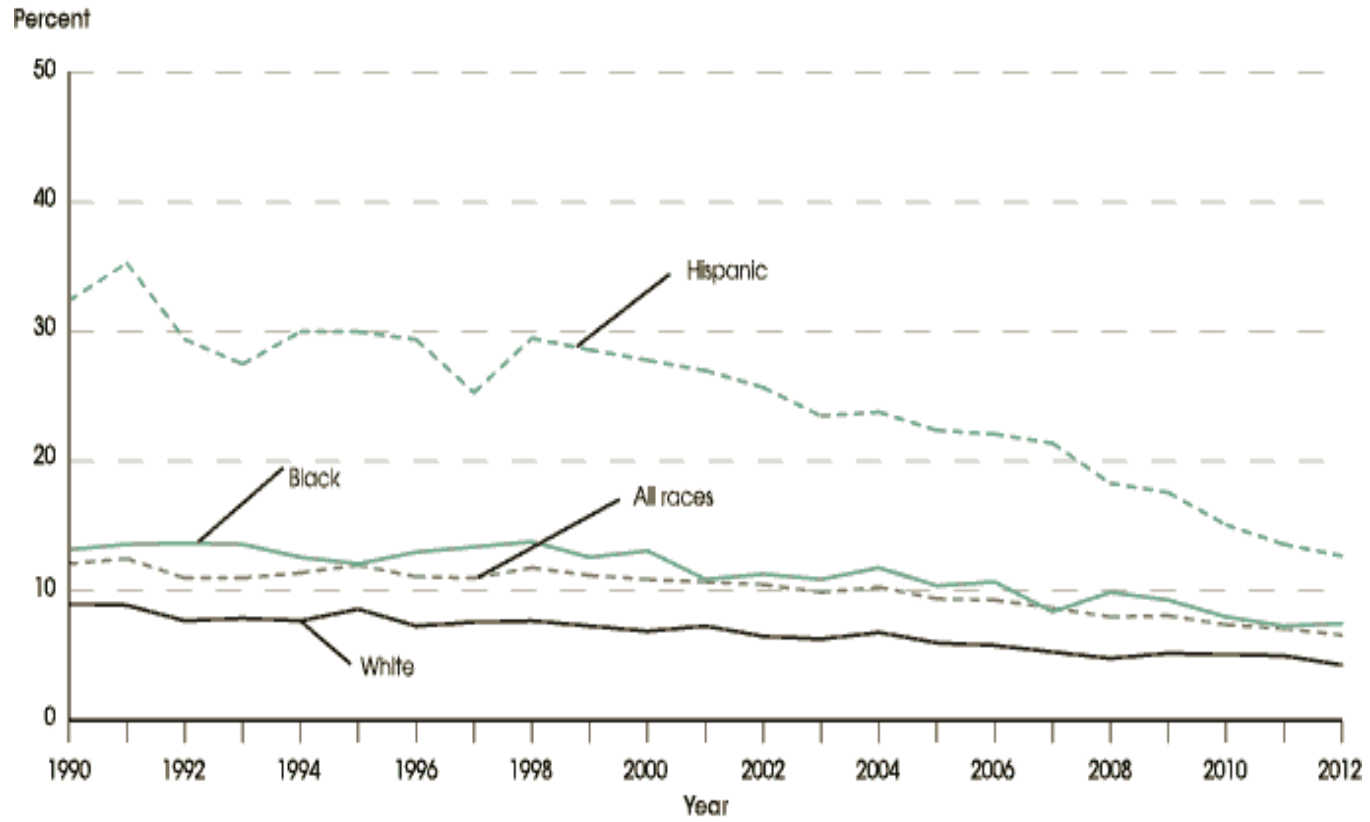
Bryant University

RE Day

Why is this a crisis?

- Median Income of a high school dropout in 2009 is $25,000
- Median Income of a person who has completed high school or earned an equivalency certificate is $43,000
- According to Rouse (2007) a high school dropout loses out on $630,000 of income over the course of a lifetime when compared to an individual with at least a high school credential.
- Unemployment rate of a high school dropout in the United States is 12% compared to the national average of 8.1%
- The United States ranks eighteenth in high school graduation rates and fifteenth in college graduation rates (Organization for Economic Co-Operation and Development, 2007)

Status of Dropout Rates, by Ethnicity



Source: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS)

Literature Review

- Yeboah et al. (2009) found that the US Department of Labor estimates that 90 percent of new high-growth high-wage jobs will require some post-secondary education
- The definition of a dropout for the purposes of this study is “any student who leaves school for any reason before graduation or completion of a program of studies without transferring to another elementary or secondary school.” (State Board policy (HSP-Q-001))
- According to Yeboah (2010), “graduation rates are a fundamental indicator of whether or not the nation’s public school system is doing what it is intended and funded to do: engage, enroll, and educate youth to be productive members of society”
- Some of the tragic ramifications of a high school dropout can be found in Amos (2008), where high school dropout’s children are more likely to become high school dropouts themselves, as are their children’s children, and so on, in a possibly endless cycle of poverty.

Literature Review (continued)

- Allensworth and Easton (2005) have found research on dropping out has shown that the decision to persist in or leave school is affected by multiple contextual factors-family, school, neighborhood, peers interacting in a cumulative way over the life course of a student.
- Peck et al. (1987) has noted that “the issue of dropping out and dropout prevention cannot be separated from issues affecting our total economic and social structure. These issues include poverty, unemployment, discrimination, the role of the family, social values, the welfare cycle, child abuse, and drug abuse.”
- Yeboah et al. (2010) attempted a econometric analysis of the dropout crisis in North Carolina finding that while income level, was not found to be significant, minority population, gross tax revenue, and poverty are all significant and affect the state as a whole.
- Lofstrom (2010) applied a similar analysis to the state of Texas, the study found that, native born Hispanics are 13% percent more likely to drop out of high school compared to whites. The study went on to find that African-Americans are 12.5% more likely to drop out when compared to whites.

Data

- Cross-Sectional Data from all 50 states and the District of Columbia
- State Education Profiles from the National Center of Education Statistics

Variables and Description

Acronym	Description	Data Source
DROP	Total dropouts in the school year 2009-2010 per state	National Center for Education Statistics (NCES)
DROPW	Total dropouts per state who are white	National Center for Education Statistics (NCES)
DROPB	Total dropouts per state who are African-American	National Center for Education Statistics (NCES)
DROPH	Total dropouts per state who are Hispanic	National Center for Education Statistics (NCES)
REVENUE	Elementary and secondary education total revenue per state	National Center for Education Statistics (NCES)
PCAPINC	Per Capita Income in 1999 per state	National Center for Education Statistics (NCES)
EXPEND	Elementary and secondary education total expenditures per state	National Center for Education Statistics (NCES)
POVSTAT	Poverty Status in 1999-Income in 1999 below poverty level	National Center for Education Statistics (NCES)
GR8MTH	Grade 8 math score on the National Assessment of Educational Progress	National Center for Education Statistics (NCES)
PTRATIO	Average Pupil to Teacher Ratio per state	National Center for Education Statistics (NCES)
GR8READ	Grade 8 reading score on the National Assessment of Educational Progress	National Center for Education Statistics (NCES)
DEGREES	Post-Secondary degrees or certificates awarded per state	National Center for Education Statistics (NCES)

Expected Signs

Acronym	Variable Description	What it Captures	Expected Sign
DROP	Total dropouts per state	Dropouts in each state	
DROPW	Total dropouts who are white per state	Dropouts per state who are white	
DROPB	Total dropouts who are African-American per state	Dropouts per state who are African American	
DROPH	Total dropouts who are Hispanic per state	Dropouts per state who are Hispanic	
REVENUE	Elementary and secondary education revenue per state	A measure of resources devoted to education per state	-
PCAPINC	Per Capita Income in 1999 per state	An indicator of wealth per state	-
EXPEND	Elementary and secondary education expenditures per state	A measure of resources devoted to education per state	-
POVSTAT	Poverty Status in 1999- Income in 1999 below poverty level	Poverty measure per state	+
PTRATIO	Pupil/Teacher Ratio	Attention devoted to an individual student per state	+
GR8MTH	Grade 8 Math score per state	A state wide educational achievement indicator	-
GR8READ	Grade 8 Reading score per state	A state wide educational achievement indicator	-
DEGREES	Post- Secondary degrees or certificates awarded	An indicator of a state's emphasis on education	-

Empirical Model

- Four separate models were used to examine the dropout crisis in the United States; the first exploring the total dropouts, the next looking at White dropouts, then African American dropouts, and finally Hispanic dropouts.
- $DROP_i = \beta_0 + \beta_1 PTRATIO_i + \beta_2 REVENUE_i + \beta_3 EXPEND_i + \beta_4 DEGREES_i + \beta_5 PCAPINC_i + \beta_6 POVSTAT_i + \beta_6 GR8MTH_i + \beta_7 GR8READ_i + u_i$
- $DROPW_i = \beta_0 + \beta_1 PTRATIO_i + \beta_2 REVENUE_i + \beta_3 EXPEND_i + \beta_4 DEGREES_i + \beta_5 PCAPINC_i + \beta_6 POVSTAT_i + \beta_6 GR8MTH_i + \beta_7 GR8READ_i + u_i$
- $DROPB_i = \beta_0 + \beta_1 PTRATIO_i + \beta_2 REVENUE_i + \beta_3 EXPEND_i + \beta_4 DEGREES_i + \beta_5 PCAPINC_i + \beta_6 POVSTAT_i + \beta_6 GR8MTH_i + \beta_7 GR8READ_i + u_i$
- $DROPH_i = \beta_0 + \beta_1 PTRATIO_i + \beta_2 REVENUE_i + \beta_3 EXPEND_i + \beta_4 DEGREES_i + \beta_5 PCAPINC_i + \beta_6 POVSTAT_i + \beta_6 GR8MTH_i + \beta_7 GR8READ_i + u_i$

Regression Results

	DROP	DROPW	DROPB	DROPH
CONSTANT	27663.51 (31671.54)	-5868.127 (11604.01)	29358.81 (11817.61)	1611.973 (22771.02)
PTRATIO	728.31** (302.525)	326.2897*** (110.8408)	-62.25475 (112.8811)	345.5781 (271.5075)
REVENUE	0.00000448** (0.00000186)	-0.000000126 (0.000000683)	0.000000349 (0.000000696)	0.00000343** (0.00000134)
EXPEND	0.00000424** (0.00000186)	-0.0000000953 (0.000000681)	-0.000000180 (0.000000693)	-0.00000331** (0.00000134)
DEGREES	0.0409943 (0.030836)	0.0432813*** (0.0112979)	0.0180813 (0.0115058)	-0.0231001 (0.0221703)
POVSTAT	0.0083137*** (0.0021997)	-0.0687817 (0.0947625)	-0.0013995* (0.0008208)	0.0097847*** (0.0015815)
PCAPINC	-0.0394734 (0.2586411)	-0.0687817 (0.0947625)	-0.118816 (0.0965068)	0.1265937 (0.1859563)
GR8MTH	-89.18071 (255.3316)	-112.4092 (93.54992)	-83.59725 (95.27192)	82.47573 (183.5769)
GR8READ	-51.63692 (322.0555)	134.9923 (117.9966)	-8.558347 (120.1686)	-133.5071 (231.5496)
R^2	0.9006	0.7559	0.7451	0.8451
F-Statistic	47.57***	16.26***	15.35***	28.64***
Number of Observations	51	51	51	51

Note: *** , **, and * denotes significance at the 1%, 5%, and 10% respectively. Standard errors in parentheses

Conclusion

- The study confirms the work of Yeboah et al. (2010) in the sense that Per Capita Income was not significant in any model
- Additionally, Poverty Status was found to be significant in the regression for all races, and significant at a 10% level for African Americans, and a 1% level for Hispanics
- Pupil/Teacher Ratio and Degrees Certified are the most predictive variables for Whites, both at a 1% significance
- Despite not being significant in any other regression, Total Revenue and Expenditures for Elementary and Secondary Education were found to be significant for Hispanics at a 5% level
- The results suggest a policy change in the total expenditures for Elementary and Secondary school education. Programs like City Year Inc. provides individualized tutoring, which would decrease the Pupil/Teacher ratio.
- Perhaps more importantly, City Year works in economically disadvantaged areas of the United States, England, and South Africa. This would target students, who are below the Poverty Level, as early as 3rd Grade and would greatly help the dropout crisis.

Inflation Targeting

Matthew Walsh
Andres Pernia

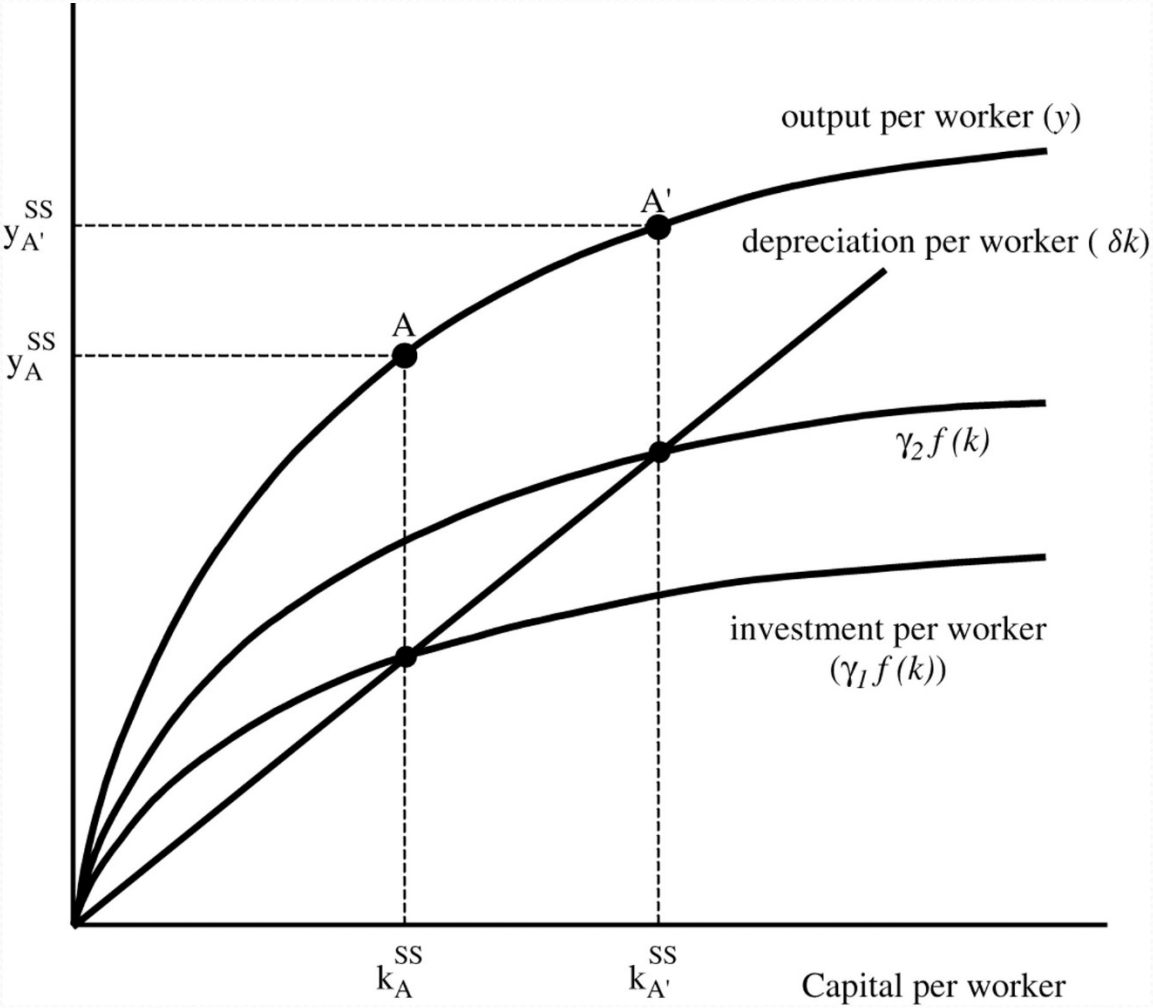
Agenda

- Inflation (Definition and main issues)
- Inflation Targeting (Definition)
- Intermediate Targets
- Monetary Targeting
- Exchange Rate Targeting
- Implementation Issues
- Pros of Inflation Targeting
- Cons of Inflation Targeting

Inflation

- What is inflation?
- High inflation is damaging to an economy
  - Excessive consumption
  - Discourages savings and investments
  - Keynesians vs Conservatives
- Costs of inflation
  - International competitiveness
  - Confusion and Uncertainty
  - Menu Costs
  - Shoe leather costs

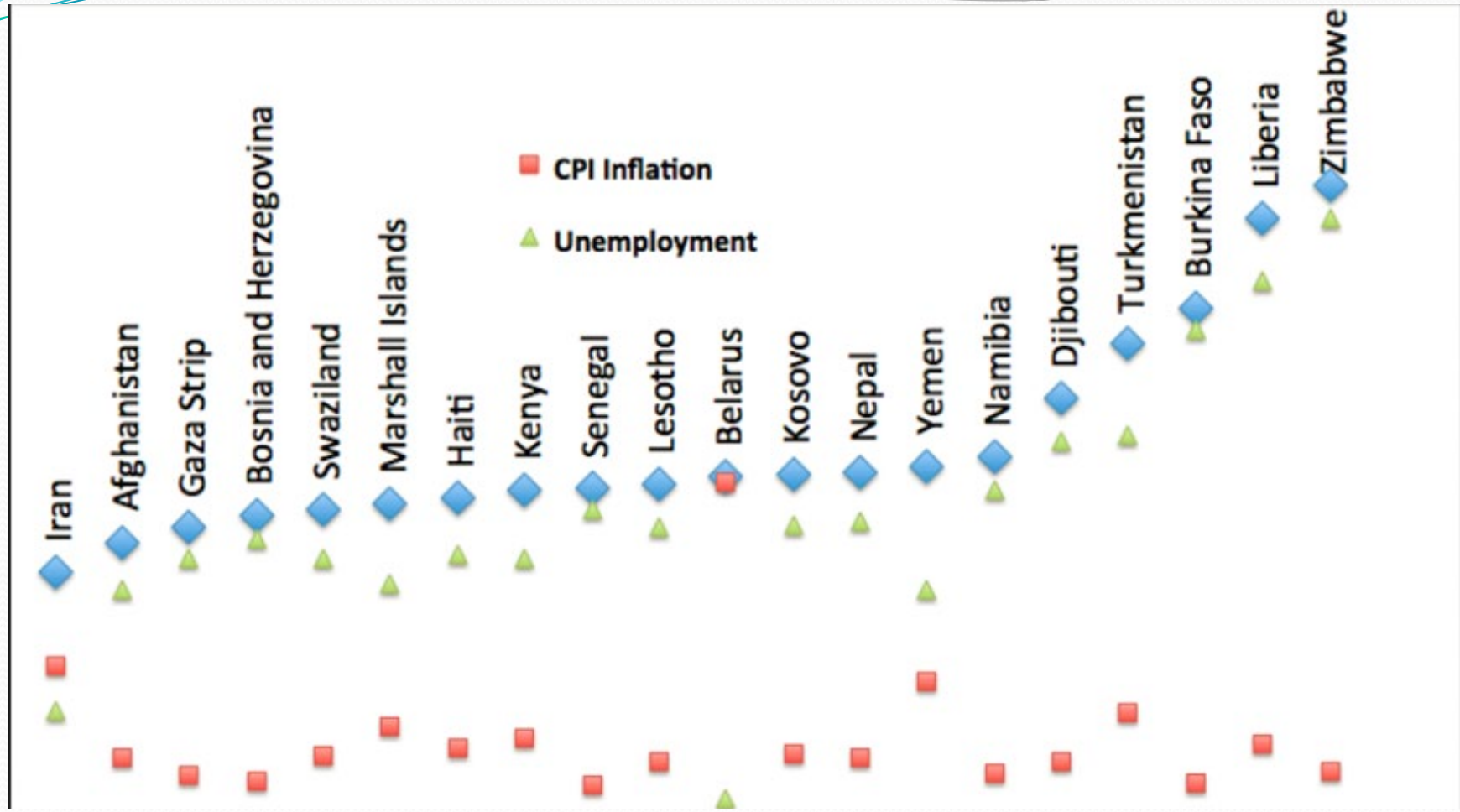
The Creation of Capital Stock



Countries with the Highest Inflation Rates

Country	Inflation rate (consumer prices) (%)	Date of information
South Sudan	79.0	May 2012 est.
Belarus	59.1	2012 est.
Venezuela	56.2	2013 est.[6]
Syria	37.0	2012 est.
Sudan	31.9	2012 est.
Iran	27.1	2012 est.
Argentina	25.3	2012 est.
Ethiopia	23.4	2012 est.
Malawi	21.4	2012 est.
Burundi	18.0	2012 est.
Eritrea	17.0	2012 est.
Tanzania	15.3	2012 est.
Guinea	15.0	2012 est.
Uganda	14.7	2012 est.
Democratic Republic of the Congo	13.8	2012 est.
Marshall Islands	12.9	2008 est.
Mongolia	12.9	2012 est.
Maldives	12.8	2011 est.

Rank	Countries	Missery index score	CPI Inflation	Unemployment
1	Zimbabwe	100.6%	5.6%	95.0%
2	Liberia	95.0%	10.0%	85.0%
3	Burkina Faso	80.6%	3.6%	77.0%
4	Turkmenistan	75.0%	15.0%	60.0%
5	Djibouti	66.0%	7.0%	59.0%
6	Namibia	56.5%	5.3%	51.2%
7	Yemen	55.0%	20.0%	35.0%
8	Nepal	53.8%	7.8%	46.0%
9	Kosovo	53.6%	8.3%	45.3%
10	Belarus	53.4%	52.4%	1.0%
11	Lesotho	52.2%	7.2%	45.0%
12	Senegal	51.4%	3.4%	48.0%
13	Kenya	51.0%	11.0%	40.0%
14	Haiti	49.9%	9.3%	40.6%
15	Marshall Islands	48.9%	12.9%	36.0%
16	Swaziland	48.0%	8.0%	40.0%
17	Bosnia and Herzegovina	47.1%	3.8%	43.3%
18	Gaza Strip	45.0%	5.0%	40.0%
19	Afghanistan	42.7%	7.7%	35.0%
20	Iran	37.8%	22.5%	15.3%



"The estimates suggest that people would trade off a 1-percentage-point increase in the unemployment rate for a 1.7-percentage-point increase in the inflation rate"

Inflation Targeting

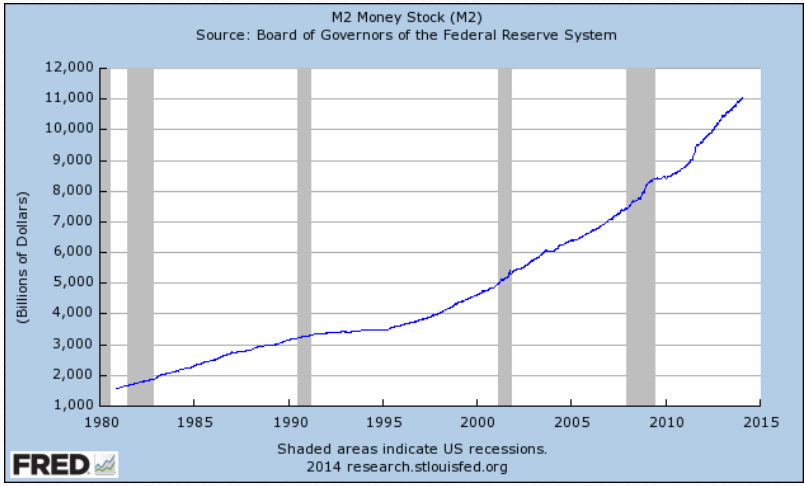
- What is inflation targeting?
- Bernanke's definition
- Federal Reserve goals:
    1. Maximum employment
    2. Price Stability
    3. Moderate Long-term interest rates
- Conflicting goals

Intermediate targets

- Monetary Targeting and Exchange Rates
- Three criteria needed:
  - It should be quickly and accurately measurable
  - It must be controllable
  - It should have a predictable effect on the main goals of monetary policy

Monetary Targeting

- Involves choosing some form of money aggregate and picking a target level for it.
- Measurable, controllable, predictable
- Issues
  - Complexity
  - Demand for money
- Money Multiplier and velocity
- Central bankers opinion



Exchange Rate Targeting

- In the past, many countries have fixed their currencies to the price of a commodity.
  - U.S. Gold Standard
- More recently, countries have fixed their currencies to the currency of countries with low inflation rates.
- Attractive in small open economies that must import intermediate inputs to the production process, where the exchange rate has a direct impact on inflation.
  - Measurable, its value is know instantly and perferctly

Problems with Exchange- Rate Targeting

- Mundell's Trilemma
  - Economy cannot simultaneously maintain
    - Fixed Exchange Rate
    - Free Capital Movement
    - Independent Monetary Policy
- Mediating relative changes in wealth
  - U.S. dollar ($) against South African rand (ZAR)
- Encourage speculators
  - Central bank will not be willing or able to defend the Price/Earnings to growth ratio (PEG)

U.S. Gold Standard

- Beginning in 1879 the U.S. backed their currency with gold
  - Americans could trade $20.67 for an ounce of gold
- Abandoned the gold standard in 1933
- Completely severed the link between the dollar and gold in 1971

Decade	Average Real Per-Capita GDP Growth	Standard Deviation	Average Inflation Rate	Standard Deviation
1790-1800	0.8%	2.2%	3.3%	5.7%
1800-1810	0.7%	3.2%	0.9%	7.1%
1810-1820	-0.2%	1.8%	-2.6%	9.4%
1820-1830	1.3%	2.8%	-1.3%	4.6%
1830-1840	0.9%	4.1%	0.7%	4.1%
1840-1850	0.9%	2.4%	-0.1%	4.5%
1850-1860	1.9%	2.9%	0.7%	4.5%
1860-1870	0.9%	3.5%	2.8%	11.8%
1870-1880	3.8%	7.6%	-2.1%	3.0%
1880-1890	0.6%	4.9%	-0.9%	2.1%
1890-1900	1.4%	6.3%	-0.4%	2.1%
1900-1910	1.5%	9.2%	1.5%	2.1%
1910-1920	1.0%	6.2%	8.0%	7.8%
1920-1930	1.2%	5.8%	-2.2%	7.2%
1930-1940	2.0%	8.5%	-1.6%	5.7%
1940-1950	4.2%	9.6%	5.4%	4.0%
1950-1960	1.7%	3.1%	2.4%	**1.9%**
1960-1970	2.9%	2.1%	2.7%	**1.6%**
1970-1980	2.1%	2.6%	7.0%	**1.9%**
1980-1990	2.3%	2.3%	4.2%	**2.1%**
1990-2000	2.2%	1.5%	2.1%	**0.6%**
2000-2010	0.7%	1.8%	2.2%	**0.9%**

Inflation consumer prices (annual %)

	2009	2010	2011	2012
Venezuela	27.1	28.2	26.1	21.1
Bolivia	3.3	2.5	9.8	4.6
Chile	-	1.4	3.3	3.0

Exports of goods and services (% GDP)

	2009	2010	2011	2012
Venezuela	18	29	30	26
Bolivia	36	41	44	47
Chile	37	38	38	34

Imports of goods and services (%GDP)

	2009	2010	2011	2012
Venezuela	20	18	20	24
Bolivia	33	34	38	38
Chile	30	32	35	34

Inflation Targeting

- March 1990, New Zealand became the first country to adopt a formal policy of inflation targeting

Relative OECD Rank (1 highest; 19 lowest)

Time period	**Inflation**		**Real GDP growth**		**Real exchange rate**		**Real short-term interest rate**	
	s.d.	rank	s.d.	rank	s.d.	rank	s.d.	rank
Since 1979	5.4	3	2.5	7	6.8	10	3.6	2
Since 1985	4.0	1	2.3	7	6.9	10	2.4	7
Since 1990	1.1	12	2.6	4	7.0	10	1.6	16
Since 1993	0.5	17	2.2	4	7.4	4	1.4	10

Why has the U.S. not adopted IT(Inflation-Targeting)?

- Political System
  - Parliamentary vs. federal system
- Federal Reserve has been influenced by many of the ideas that are associated with explicit IT policies
- Bernanke opined that the move to an explicit IT policy would require it to:
  - Quantify what it meant by the term “price stability”
  - Publish regular medium-term projections of the economic outlook

Why has the U.S. not adopted IT(Inflation-Targeting)?

- In an IT regime low inflation is monetary policy's sole long-run goal
  - Transparency in communicating the central bank's plans and objectives is crucial
- Explicit inflation targets coupled with credibility on the central bank's part help reduce uncertainty about future inflation
  - Leads to investment decisions being made on the actual merits of investment
- Transparency on the part of the central bank may help reduce volatility in financial markets by signaling to investors what its intentions and views are

Implementation Issues

- What measure of inflation to use
  - CPI- inflation that the typical consumer faces
  - CPIX- "core" CPI- omits energy prices, interest payments, or some other cost
  - GDP deflator- measures the inflation of a country's production (with international trade, differs from consumer inflation)
- What is the target level of inflation
  - Setting of the target emphasizes that price stabilization is the overriding goal of monetary policy
- Target point or target range
  - South African Reserve Bank targets its forecast of inflation over the next 18 months
- Requires a central bank to have credibility, exercise good judgment, and be held accountable

Pros of Inflation Targeting

- IT can help build the central bank's credibility and lower inflation expectations permanently
- IT grants the central bank greater flexibility to deal with exogenous shocks
- IT imposes lower costs on an economy in the case of monetary-policy failure

Performance under IT

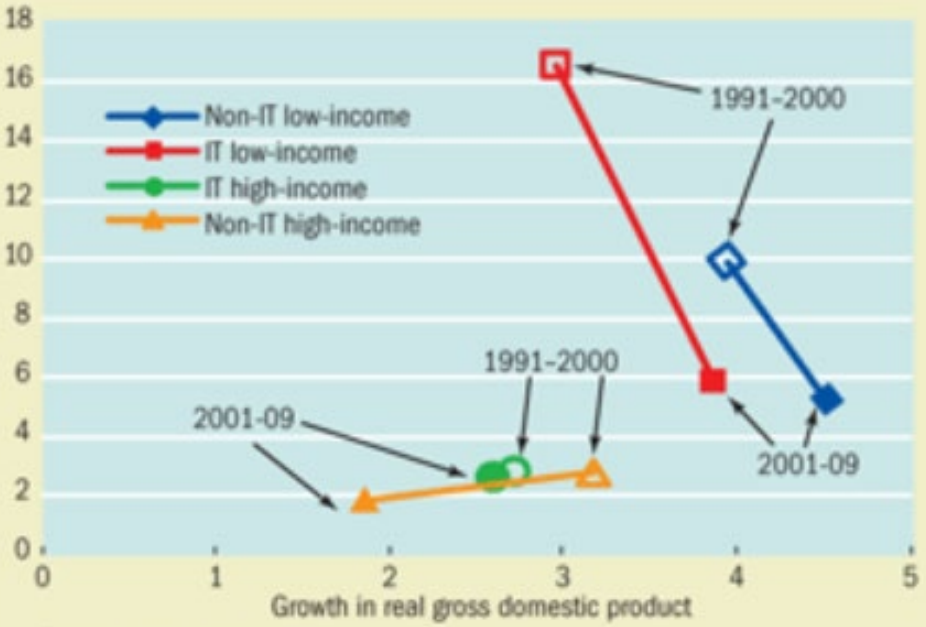
- Countries that adopted inflation targeting saw larger improvements in performance

Chart 1

Inflation and growth performance

Although inflation and growth rates improved in most countries between the periods 1991–2000 and 2001–09, inflation-targeting (IT) countries improved more.

(consumer price inflation, percent)



Source: Author's calculations.

Note: Hollow symbols represent period 1991–2000; filled-in symbols represent period 2001–09. The straight lines represent direction of movement between the periods for the four groups of countries.

Performance under IT

- Countries that adopted inflation targeting registered bigger declines in the volatility of inflation and output.

Chart 2

Output and inflation smooth

Swings in both inflation and growth were less volatile in the period 2001–09 than in 1991–2000, but the decline was greater in inflation-targeting (IT) countries.

(inflation variability, percent)

Source: Author's calculations.

Note: Hollow symbols represent period 1991-2000; filled-in symbols represent period 2001–09. The straight lines represent direction of movement of variability between the periods for the four groups of countries.

Cons to Inflation- Targeting

1. IT offers too little discretion and, hence, unnecessarily inhibits growth
   - Central bank needs convince the public that it is tough on inflation
2. Alternatively, IT offers too much discretion to the central bank and, hence, inherently undermines its inflation-fighting credentials
   - Too many policy options
3. IT implies high exchange-rate volatility
   - Implications on exporters and importers and can negatively impact growth
4. IT works only in countries that meet a stringent list of preconditions
   1. Technical capability of the central bank to implement inflation targeting
   2. Appropriate fiscal policies
   3. Sound financial markets
   4. Central-bank independence

Questions?