DISCUSSION PAPERS IN ECONOMICS

Working Paper No. 07-03

What Role Does Racial Integration Play in the Economic Performance of the (United) States? An Empirical Investigatio

What Role Does Racial Integration Play in the Economic Performance of the (United) States?

An Empirical Investigation Using Panel Data Analysis

Said Boakye[1]: boakye@colorado.edu

Department of Economics, University of Colorado at Boulder

1 Introduction

What are the main forces behind the economic performance of countries or regions of a country? Economists have long debated the answer to this question. Neoclassical economists, for instance, identi..ed savings (and thus physical capital accumulation) and technological advancement as the main forces behind economic growth and development[2]. In the 1990s, much attention was paid to human capital accumulation as a source of economic growth and development (see, for instance, Mankiw, Romer and Weil (1992); Barro (1991); Becker, Murphy and Tamura (1990); etc.). Not much attention has been paid to social forces that may work in favor or against the economic performance of countries or regions of a country. Although economists like Easterly and Levine (1997), Knack and Keefer (2002), Alesina et al. (2003), etc. have found that ethnic divisions generally impede economic growth and development, no one has ever tried to quantify, in statistical terms, the extent to which social integration relaxes this impediment and thus positively contributes to economic growth and development. I therefore ...ll this gap by empirically investigating what role, and to what extent, social integration may play in the determination of income per capita. I use the 48 contiguous states of the U.S. as my

cation should be the only reason to push for greater racial integration. However, the point here is that economic justi…cation would provide an added incentive to encourage policy makers at the state capitals to allocate more economic resources to ensure increased racial integration.

The analysis in this paper utilizes panel data regression on the 48 contiguous U.S. states from 1950 to 2000. The data are decennial values. This means that there are six time periods. Although I control for human capital, physical capital, taxes and population growth rates, the emphasis is on the extent to which di¤erences in the levels of racial integration explain the di¤erences in per-capita incomes. Like Furtado (2006), I consider the levels of interracial marriages as the measure of the degree of racial integration. I use only marriages between Blacks

e(e)9(x)12(p1(s)8 [illegible]

gressor is distinct from the levels of interracial marriages. In theory, this measure of social fractionalization results from political dynamic process, while the level of social integration as measured by the level of intergroup marriages results from social dynamic process. In the data, the correlation between the levels of interracial marriages and this measure of social fractionalization is only 0:24.

of 16 states that continued to have such laws. I therefore use this U.S. Supreme Court's decision as an exogenous event for a difference-in-difference estimation. Results from all these estimation techniques show that the degree of social integration as measured by the levels of interracial marriages is a good predictor of income per capita across the states in the U.S. as the theory I have made reference to predicts.

The rest of the paper is organized as follows. Section 2 discusses related literature. Section 3 gives a quick review of the theoretical model. Section 4 discusses the empirical setup and the data for the analysis. Section 5 discusses the econometrics and the estimation results. Section 6 does robustness checks. And finally, section 7 concludes the paper.

2 Related Literature

The theoretical model the empirical work dwells on is related to three strands of economics literature. First, it relates to models that seek to explain the dynamic behavior of output per capital of countries (see, for instance, Solow (1956), Cass (1965), Koopman (1965),Romer (1986 and 1990), Lucas (1988) and Azariadis and Drazen (1990)) . However, this model differs from these other models in this literature by incorporating sociopolitical evolutionary process into economic choice process, while the other models in this literature generally concentrate on the nature of the production function and how it impacts the dynamics of per-capita output, while implicitly assuming similar social and political environments for countries. That is, these models fail to answer the fundamental question of how sociopolitical transformational process of countries affects the dynamic behavior of output per capita.

The second strand of literature that the theoretical model for the empirical work relates to is the literature on social con‡icts (see, for instance, Grossman (1991), Acemoglu and Robinson (2001), Roemer (1995), Tornell and Velasco (1992)). Grossman develops a theory of insurrections that treats insurrection and its deterrence as activities that compete with production of goods. This model adopts a similar stand by arguing that allocating resources for political power struggle is ine¢ cient and it decreases resources available for production. However, my model goes beyond this idea by showing how social integration helps minimize the amount of resources ine¢ ciently allocated towards political power struggle. Acemoglu and Robinson model the complications created by the existence of di¤erent social groups in a country as the country undergoes political transition. The social groups in Acemoglu and Robinson's model are the rich who dislike democracy because of its redistributive e¤ect, and the poor who want democracy. However, the social groups in my model are ethnic, racial or religious in nature and their objective is not either to democratize or not, but they struggle for power to advance their sociocultural or religious values or ideologies.

Third, the model is related to the models in the literature that links social fragmentation to economic performance of countries (see, for example, Alesina and Drazen (1991), Alesina and Spolaore (1997), Alesina, Baqir and Easterly (1999)). However, these models tend to take an indirect approach in linking social fragmentation to output per capita and economic growth. That is, these models generally link social fragmentation to issues like public goods provision and macroeconomic stabilization. However, my model takes a more direct approach in linking social fragmentation to the dynamics of output per-capital

and economic growth by showing how social dynamic process relaxes political complications created by social divisions thereby reallocating resources from ine¢ cient use to e¢ cient use (production) leading directly to economic growth and development.

On the empirical front, this paper is related to the empirical literature that studies the e¤ects of social divisions on economic performance of countries (see, for instance, Easterly and Levine (1997), Collier (2000), Knack and Keefer (2002), Alesina et al. (2003), Alesina and Ferrara (2005), etc.). However, unlike these papers in this literature which only estimate the e¤ect of social fractionalization on income per capita and economic growth, this paper goes beyond this by emphasizing and estimating the extent to which social integration positively contributes to economic development as measured by income per capita, even though, I estimate as well the e¤ects of social fractionalization. I should emphasize here that not all the papers in this empirical literature …nd a universal negative relationship between social fractionalization and economic performance of countries. For instance, Collier (2000), in a cross-country study, …nds that ethnic diversity has negative e¤ects on economic performance of only countries without democracies but has no e¤ects on economic performance of countries with democracies. He argues that democracies are able to create the necessary institutions to accommodate minorities thereby doing away with the damaging e¤ects of ethnic fractionalization. This, in no doubt, is a very plausible explanation. However, the question that arises here is that if democracy solves the problems associated with ethnic fractionalization, why is it that countries in the developing world that have been found to be very socially fractionalized (see, for instance, Easterly and Levine

(1997)) do not create strong democracies to solve the problems associated with ethnic divisions thereby enhancing their economic growth and development? Is it because these countries do not see that strong democratic institutions are able solve the problems associated with social fractionalization? As I argued in Boakye (2007a), democracy is unable to ‡ourish in socially fragmented societies at the initial stage of the country's formation, since the social groups (especially the minority groups) …nd it more attractive to deviate from the democratic principles dictating majority rule. This is due to the fact that the payo¤ from holding on to political power may be so high at the initial stage of the country's formation, since the groups may di¤er so much in their sociocultural or religious values or ideologies, which, in addition to consumption, are valued by individual group members. However, as the groups become socially integrated, the payo¤s from holding on to political power start to diminish, and hence democratic institutions may start to develop. This means that as much as democracy may help consolidate the political development process and thus accelerate economic growth and development, the democratic institutional development itself is part of the broader sociopolitical transformational process.

3 Quick Review of the Theoretical Model[4]

Suppose that there are two groups of people (groups X and Z) which are exogenously put together to form one country[5]. The groups

[4] For detailed analysis of the theoretical model, see "Social Transformation, Political Transition and Economic Growth" by Said Boakye.

[5] This, in fact, is in conformity to what happened in practice to many countries after European colonization. For instance, the Akan tribal regions and the non-Akan tribal regions were joined together to form the Gold Coast (later changed to Ghana) by the British; the northern Arabs and the southern Black Africans were joined together to form Sudan; etc.

have the same population growth rates n, and have identical members such that x and z are representative members of groups X and Z respectively. At every t, each individual is endowed with H units of a composite resource. H can either be used to produce consumable commodity y (h) or used as the means for power struggle (m). Since Pareto e¢ ciency requires that at every t (h_t

that an individual will marry from his/her own social group, $q = 1 - r$ is the probability that an individual will intermarry and P is Markov transition matrix, I show in Boakye (2007a), which presents the entire model that this social integrative process results in the following inter-group marriage dynamics:

$$s_t^{im} = \frac{1}{2} - \frac{1}{2}(2r-1)^t \qquad (1)$$

Where s_t^{im} is the proportion of all marriages that are intermarriages. Since $\frac{1}{2} \leq r < 1$, $0 < s_t^{im} \leq \frac{1}{2}$ for $t \neq 0$. t is the time elapsed since the country's formation.

On the political front, each individual group member is assumed to contribute the same amount of H $(m_t^i; i = x, z)$ at every t for political power struggle so as to ensure higher utility through higher social status, which results from the use of political power to promote the group's sociocultural or religious values. The probability that a group is able to successfully acquire or defend political power is assumed to be $p_t^i = 1 - p_t^j = \frac{N_t^i m_t^i}{N_t^i m_t^i + N_t^j m_t^j} = \frac{(1+n)^t N_0^i m_t^i}{(1+n)^t N_0^i m_t^i + (1+n)^t N_0^j m_t^j} = \frac{N_0^i m_t^i}{N_0^i m_t^i + N_0^j m_t^j}; i \neq j$: N^i is the population size of group $i = X, Z$.

The social integrative process, which works through the Markov process and the political dynamic process interact with each other to yield the following optimization problems (constraints have already been substituted):

$$x: \quad Max \sum_{t=0}^{\infty} \; ^t \left\{ a(\; _t h_t^x - \;) + bG_t - \left[\frac{(H - h_t^z)}{(H - h_t^z) + R(H - h_t^x)} \right] bT(2r-1)^t \right\}$$

$$z: \quad Max \sum_{t=0}^{\infty} \; ^t \left\{ a(\; _t h_t^z - \;) + bG_t - \left[\frac{(H - h_t^x)}{1} \right. \right.$$

Where $T = 2$, and is the per-capita lump-sum tax revenue of the government. $R = \frac{N_t^i}{N_t^j} = \frac{N_0^i}{N_0^j}$. is the discount factor. These optimization problems yield the following resource allocation decisions in the equilibrium:

$$h_t^{x*} = h_t^{z*} = h_t^* = H - \left[\frac{R}{(1+R)^2}\right] \frac{b}{a_t} T(2r-1)^t \qquad (2)$$

$$m_t^{x*} = m_t^{z*} = m_t^* = \left[\frac{R}{(1+R)^2}\right] \frac{b}{a_t} T(2r-1)^t \qquad (3)$$

Substituting equation (2) into the production function yields the following dynamic process of output per capita.

$$y_t^{x*} = y_t^{z*} = y_t^* = {}_t H - \left[\frac{R}{(1+R)^2}\right] \frac{b}{a} T(2r-1)^t \qquad (4)$$

Now, the more equal the relative sizes of N^x and N^z are, the greater the $\frac{R}{(1+R)^2}$ and thus the greater the size of the economic ine¢ ciency m_t^*, and hence the smaller the output per capita y_t^*. This means that if one of the social groups is so small and the other is so big, political tension or friction is very small leading to limited economic consequences and vice versa, if we hold other factors constant. $\frac{R}{(1+R)^2}$ measures the degree of social fractionalization. $\frac{R}{(1+R)^2}$ is highly related to the "ethnic fractionalization" measure used by Easterly and Levine (1997), Collier (2000), Alesina et al. (2003), Alesina and Ferrara (2005), and others. The ethnic fractionalization (EF) measure used by these economists is a Her...ndahl index de...ned as $EF = 1-$

groups. EF is the probability that two individuals selected at random belong to two different ethnic groups. In fact, $\frac{R}{(1+R)^2} = \frac{1}{2}(1 - \sum_i^2 s_i^2)$,

mined by the social distance between the two groups. That is, groups

the percentage of total marriages in state i at time t that are interracial. $racfrac_{it} \equiv \ _{it} \equiv \frac{R_{it}}{(1+}$

is 1982-1984.

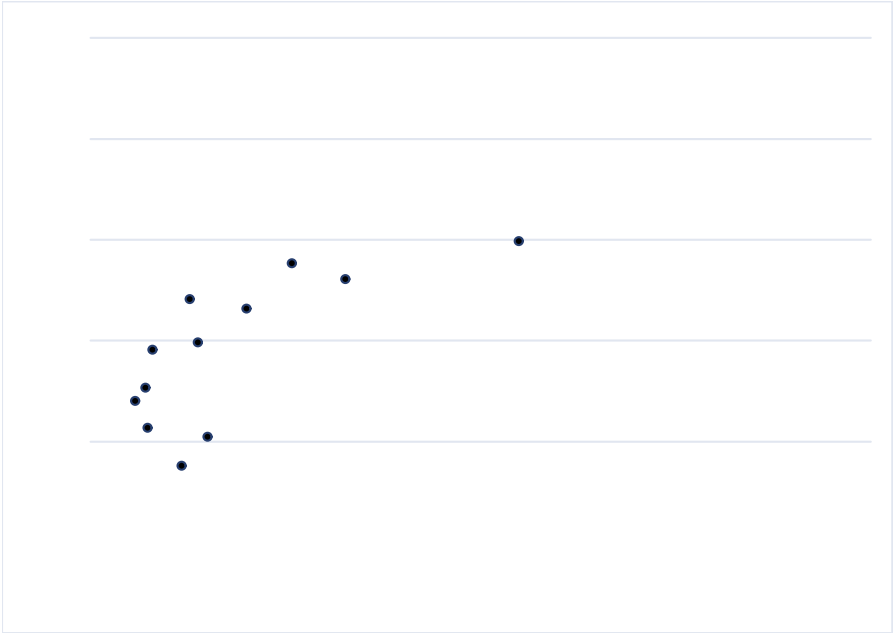
Data on marriages, and on black and white populations, which were respectively used to construct the percentage of interracial marriages and the degree of racial fractionalization are from the Integrated Public Use Microdata Series (IPUMS) of the Minnesota Population Center, University of Minnesota (htpp://usa.ipums.org/usa/)[7]. Similar to Holtz-Eakin (1993) and Johnson and Takeyama (2003)[8], I use people with four-year college education (college

2000, interracial marriages as a percent of total marriages interr, ranges from the minimum 0:224% to the maximum of 1:72%, with the mean of 0:839% and standard deviation of 0:371%. The degree of racial fractionalization, on the other hand, ranges from the minimum of 0:289% to the maximum of 23:37%; with the mean and standard deviation of 8:77% and 7:01% respectively (recall that the minimum value racial fractionalization can assume is 0, and the maximum value it can assume is 25%.). These values show that these social variables exhibit quite large variations across the states in the U.S. Figure 1 on the other hand depicts scatter plots of real per-capita personal income rpcpi and percentage of interracial marriages interr for the pooled data. We can see from this ..gure that there is clearly a strong positive relationship between rpcpi and interr.

Table1: Summary Statistics of Cross-state Values for Year 2000

Variable	Obs	Mean	Std. Dev	Min	Max
Nominal per-capita personal income	48	28298:98	4499:60	21005	41485
Real per-capita personal income (rpcpi)	48	16433:77	2613:00	12198	24091
Percent Interracial marriage (interr)	48	:839	:371	:224	1:72
Racial fractionalization (racfrac) (perc.)	48	8:77	7:01	:289	23:37
College (percent)	48	8:579	3:15	10:68	24:12
Taxes (percent)	48	1:77	1:23	:196	4:73
Electrical generation Capacity (kwptpop)	48	3438:38	1918:88	1141:95	12546:39
Population growth rate (popgr) (percent)	48	13:84	11:41	:550	65:35

Figure 1: Scatter Plots of rpcpi and interr for the Pooled Data



5 The Econometrics and The Estimation Results

This section discusses the various econometric approaches I used for

2 presents the estimated coe¢ cients of model (12) using pooled OLS. In the second column of Table 2, I estimate a restricted model in which only the percent interracial marriages (interr) and the level of racial fractionalization (racfrac) are the regressors (but with decade dummies). Even in this restricted model, racial integration as measured by the percentage of interracial marriages and the degree of racial fractionalization not only have the predicted signs but are also statistically signi..cant at 1% signi..cance levels. In column 3 of Table 2, I estimate an expanded model by controlling for all the other control variables, except the decade dummies. Interracial marriages and racial fractionalization continue to have the predicted signs, and are statistically signi..cant at 1% and 5% signi..cance levels respectively. And ..nally in column 4, in addition to controlling for all the other control variables as in column 3, I include the decade dummies. In this speci..cation too, racial integration as measured by the percentage of interracial marriages and the degree of racial fractionalization have the predicted signs, and are statistically signi..cant at 1% signi..cance levels.

As has been found by writers like Mankiw, et al. (1992), Barro (1991), Holtz-Eakin (1993), etc., human capital is a very signi..cant predictor of income per capita in this benchmark regression —college is statistically signi..cant at 1% signi..cance level in both the second and third speci..cations. kwptpop is statistically signi..cant at 10% significance level in the second speci..cation, but it is not signi..cant in the third speci..cation, even though it continues to have the correct sign in the third speci..cation. Taxes is not statistically signi..cant in any of the speci..cations. Even though population growth rate is statis-

the positive sign suggests that neoclassical prediction of negative relationship between population growth rate and income per capita is not

Table : Pooled OLS estimation results

Dependent Variable is real per-capital personal income			
Variable	Rest. Model	Exp. Model 1	Exp. Model 2
Constant	5860:39***	4685:82***	4812:65***
	(31:25)	(27:01)	(24:85)
Interracial marriage (interr)	4780:95***	1503:7***	1919:13***
	(7:95)	(3:45)	(3:59)
Racial fractionalization (racfrac)	−80:07***	−24:13**	−31:0***
	(−6:11)	(−2:51)	(−3:05)
College		642:00***	589:81***
		(20:44)	(10:18)
Taxes		26:98	−14:87
		(0:37)	(−0:20)
Electrical Gen. Capacity (kwptpop)		:086*	:022
		(1:84)	(0:37)
Population growth rate (popgr)		6:95	10:23*
		(1:06)	(1:65)
R^2	0:86	0:91	0:92
Number of Observations	288	288	288
Decade Dummies	Yes	No	Yes

Values in parentheses are t-statistics; Robust standard errors used

***, ** and * denote signi..cance level at 1%, 5% and 10% respectively

Instrumental Variable Estimators

A major limitation of the pooled OLS is the assumption of exogene-

ity that is needed for its estimation results to make sense. That is, if the independent variables are not exogenous, the results presented in Tables 2 are biased. Yet, one may argue that higher incomes create favorable atmosphere for societies to integrate. That is, causality may run from income to interracial marriages – reverse causality. With the presence of reverse causality, we have the problem of endogeneity, which implies that the independent variables and the error terms in model (12) are correlated thereby biasing the estimates for the pooled OLS. To account for this endogeneity problem, I use two instrumental variable procedures to estimate model (13) below. Model

periods and many individuals. It also accounts for …xed e¤ects, heteroskedacity and autocorrelation within individuals. The system GMM estimator relies on two sets of moment conditions. The …rst set of moment conditions involves using lagged levels of variables as instruments for the …rst di¤erenced (or generally, the transformed) equations. This is the original Arellano and Bond (1991) approach, which is called "di¤erence GMM". However, a problem with this is that lagged levels are usually poor instruments for the …rst di¤erenced equations[10]. Arrellano-Bover/Blundell-Bond system GMM estimator therefore augments the di¤erence GMM approach by including …rst di¤erences as additional sets of instruments for the level equation to increase e¢ciency. However, the assumption needed here is that …rst di¤erences of instrumenting variables are not correlated with the …xed e¤ects. Table 3 presents the estimation results of model (13) using the system GMM estimator. In column 2 of Table 3, I consider the percentage of interracial marriages as the only endogenous variable, while I treat the rest of the regressors as exogenous variables. In column 3, I treat the percentage of interracial marriages and the degree of racial fractionalization as endogenous variables and the rest of the regressors as exogenous variables. Finally, in column 4, I treat all the regressors as endogenous variables. I use the following instruments for the endogenous variables. For the transformed equations, I use lagged levels dated t-2 and deeper of the endogenous variables as instruments. And for the level equations, I use …rst di¤erences of endogenous variable dated t-1 as instruments. From these results, we can see that social integration as measured by the percentage of interracial marriages is

[10] See Arellano and Bover (1995)

statistically signi…cant at 1% signi…cance level for all the speci…cations. Also, the degree of racial fractionalization has the predicted signs in all the speci…cations, and it is statistically signi…cant at 5% signi…cance level for the …rst two speci…cations, and at 10% signi…cance level for the last speci…cation.

Table : System GMM Estimation Results

5.3 Instrumenting the Percentage of Interracial Marriages by the number of decades the states have allowed interracial Marriages

In this subsection, I instrument the percentage of interracial marriages (interr) by the number of decades the states have allowed interracial marriages by either repealing their antimiscegenation laws or by having such laws overturned by the U.S. Supreme Court. Antimiscegenation laws are laws that were passed by the U.S. states to prohibit interracial marriages (or sometimes interracial sex) between whites and non-white racial groups, mostly blacks. Di¤erent states passed or repealed these laws in di¤erent years. However, there were seven states that never passed such laws. Also, there were sixteen states that did not repeal their antimiscegenation laws until these laws were overturned in 1967 by the U.S. Supreme Court. The table in the appendix presents this information in detail. The identifying assump-

challenge I face is how I should deal with the states that never passed antimiscegenation laws and thus never had a year they repealed such

year 2000 real per-capita personal income than the states that allowed interracial marriages at later years, etc.

Table : Groups of states and their Average rpcpi (for year 2000 values)

Groups of States	Ave. rpcpi (for 2000)
Never prohibited interracial marriages (7 States)	$19; 611
Ever prohibited interracial marriages legally (41 states)	$15; 891
Antimiscegenation laws repealed before or in 1887 (11 states)	$16; 931
Antimisceg. laws repealed between 1948 and 1967 (14 states)	$16; 143
Antimiscegenation laws overturned in 1967 (16 states)	$14; 956

Note: rpcpi for each state is the value for year 2000

Table : Groups of states and their Average rpcpi (for time-averaged values)

Groups of States	Average rpcpi
Never prohibited interracial marriages (7 States)	$12; 443:55
Ever prohibited interracial marriages legally (41 states)	$10; 539:50
Antimiscegenation laws repealed before or in 1887 (11 states)	$11; 307:00
Antimisceg. laws repealed between 1948 and 1967 (14 states)	$10; 973:50
Antimiscegenation laws overturned in 1967 (16 states)	$9; 632:10

Note: rpcpi for each state is the time-averaged (from 1950-2000) value

The results for the regression instrumenting the percent interracial marriages (interr) by the decades the states have allowed interracial marriages (interrallowed) are presented in Table 5. In columns 2 and 3, the variables are in levels, while in column 4, the variables are in …rst di¤erences. That is, in columns 2 and 3, interrallowed instruments for interr, while in column 4, interrallowed instruments for …rst di¤erence of interr. The di¤erence between the speci…cations in collumns 2 and

3 is that column 2 does not include time dummies while column 3 includes time dummies. I apply within (fixed-effects) estimation approach to estimate both the levels and first differenced equations. We can see from Table 5 that, even after having been instrumented for, the percentage of interracial marriages as the measure of the level of racial integration across the U.S. states continues to be statistically significant at 1% significance level for the level regression with no decade dummies,5]TJ-..(14(f)6(o)032T3.8323911.955Tf19.5660Td[(s)8(i)6(g)10(n)12(i)6(...)136(c)3)-

Table : Instrumenting interr by interrallowed (using within estimation approach)

Dependent variable for the level regression is real per-capital personal income (rpcpi)

Dependent variable for the …rst di¤erence regression is …rst di¤erence of rpcpi

Variable	Levels	Levels	1st Di¤.
Constant	5902:00***	6518:72***	1967:68***
	(10:11)	(5:72)	(9:29)
Interracial marriage (interr)	3677:88***	8697:17*	2446:93***
	(3:33)	(1:69)	(4:97)
Racial fractionalization (racfrac)	−192:07**	−436:99	−423:12***
	(−2:48)	(−1:49)	(−3:20)
College	514:23***	404:82***	−63:03
	(9:13)	(5:70)	(−0:96)
Taxes	94:82	:55	130:61
	(1:18)	(0:00)	(1:41)
Electrical Gen. Capacity (kwptpop)	:270***	:22	:16
	(3:54)	(1:13)	(1:57)
Population growth rate (popgr)	4:06	38:6*	5:84
	(0:51)	(1:88)	(1:05)
R^2	0:95	0:92	0:17 (betw.)
No. of Observations	288	288	240
Decade Dummies	No	Yes	No[12]

Values in parentheses are t-statistics

***, ** and * denote signi…cance level at 1%, 5% and 10% respectively

[12] Including time dummies renders all the coe¢ cients (including the constant) of the iTd[(:)]TJ/Fal

5.4 Di¤erence-in-Di¤erence Estimator

As I pointed out above, in 1967 there were 16 states[13] that had not allowed interracial marriages by repealing their antimiscegenation laws. That is, the antimiscegenation laws of these 16 states were overturned in 1967 by the U.S. Supreme Court in the Loving v. Virginia case. Now, if interracial marriages as a measure of racial integration truly causes income, then per-capita personal incomes should increase in these states in response to this Supreme Court's ruling, which allowed interracial marriages in these states. In this subsection, I pursue this idea. That is, I try to …nd out if by allowing interracial marriages in these states, real per-capita personal incomes actually increased in response. The challenge here is the ability to correctly isolate the e¤ects, if any, of this ruling on real per-capita personal income from

control group. The reason is that, since these other states had already allowed interracial marriages before the Supreme Court's ruling (most of them several years, if not decades, before), the ruling should not have any major additional impact on interracial marriages in these states.

…rst speci…cation from negative to positive, and it is statistically signi…cant in the positve. This therefore prompted me to reestimate the model without it in column 3. Excluding $racfrac$ did not change the signi…cance level of $treat * after$, although the estimated coe¢ ecient decreases from about $760 to about $700. Also, the explanatory powers (R^2) are about the same in both speci…cations.

Table : Di¤erence-in-di¤erence estimation results

Dependent Variable is real per-capital personal income		
Variable	With racfrac	Without racfrac
Constant	4987:45***	5125:49***
	(26:38)	(26:81)
treat	−1578:32***	−1157:43***
	(−5:30)	(−5:76)
after	1147:87	1354:74
	(1:33)	(1:55)
treat ∗ after	759:55***	699:33***
	(2:61)	(2:62)
Racial fractionalization (racfrac)	36:53**	
	(2:57)	
College	624:09***	622:85***
	(11:66)	(11:44)
Taxes	−36:41	−33:3
	(−0:50)	(−0:45)
Electrical Generation Capacity (kwptpop)	:025	−:013
	(0:43)	(−0:21)
Population growth rate (popgr)	13:34**	13:68**
	(2:00)	(2:02)
R^2	0:93	0:92
No. of Observations	288	288
Decade Dummies	Yes	Yes

Values in parentheses are t-statistics; Robust standard errors used

***, ** and * denote signi…cance level at 1%, 5% and 10% respectively

6. Robustness Checks

In this section, I check how robust some of the estimation results in

$pcstock_{it}$ is per-capita physical capital stock (both private and public estimated by Munnell (1990)) for state i in decade t. The rest of the variables in model (15) are same as before. I have omitted the decade dummies in model (15) because there are now only two periods. The instrument choice for the transformed equations and the level equations for the endogenous variables are the same as subsection 5.2. Table 7 presents the system GMM estimation results for model (15). In the first column, I consider the percentage of interracial marriages as the only endogenous variable. In the second column, I consider the percentage of interracial marriages and the degree of racial fractionalization as the endogenous variables. And in the third column, I consider all the regressors as endogenous. In all these specifications, racial integration as measured by the percentage of interracial marriages is statistically significant (at 5% significance level for the first specification and at 1% significance level for the remaining two specifications). The degree of racial fractionalization has the predicted signs in all the specifications, and it is statistically significant at 10%

Table : System GMM (with pcstock as a control var.) Estimation Results

Dependent Variable in all speci..cations is real per-capital personal income			
Variable	Only interr as endog.	interr, racfrac as endog.	All as endog.
Constant	6854:12***	6946:59***	8609:60***
	(11:35)	(8:56)	(7:23)
interr	5371:96**	13092:12***	9376:3***
	(2:58)	(3:03)	(3:57)
racfrac	−33:23	−10:69	−54:59*
	(−1:56)	(−0:26)	(−1:67)
College	290:108***	40:39	230:71*
	(3:72)	(0:27)	(1:82)
Taxes	127:35	254:21	−23:52
	(0:81)	(1:35)	(−0:08)
pcstock	:013	:030	T f:21:5
	(0:65)	(1:00)	

the states have allowed interracial marriages. As a robustness check, I control for Munnell's per-capita physical capital stock estimates (instead of controlling for electrical generation capacity I have been using as a proxy for physical capital). Table 8 presents the results for this regression. Again, I use ..xed-e¤ects approach for this instrumental variable regression model. From Table 8, racial integration as measured

Table : Results for the IV Regr. that controls for pcstock (instead of kwptpop)

Dependent Variable is real per-capital personal income	
Variable	Coe¢ cient estimate
Constant	7432:27***
	(3:04)
Percent Interracial marriage (interr)	10055:56*
	(1:69)
Racial fractionalization (racfrac)	−294:84
	(−0:88)
College	26:90
	(0:13)
Taxes	−26:33
	(−0:12)
Per-capita Capital Stock (pcstock)	:160**
	(2:51)
Population growth rate (popgr)	37:26***
	(2:69)
R^2	0:87
No. of Observations	96

Values in parentheses are t-statistics

***, ** and * denote signi..cance level at 1%, 5% and 10% respectively

7. Conclusion

Using the U.S. states as a case study, I have empirically analyzed the role social integration ina11(t)8(i)*up(a)11(s)8(e)u923Td[(t)8(h)11(e)-286(r)6d

that more resources in the hands of governments in socially fractionalized economies may lead to more economic woes, since they stimulate political power struggle and con‡icts creating even more economic in-e¢ ciency and thus economic retardation.

Appendix: U.S. States and Antimiscegenation Laws – Year Enacted, year Repealed

State	Year Law Passed	Year Repealed (or overturned by the Sup. Court)
Alabama	1822	overturned in 1967
Arizona	1865	1962
Arkansas	1838	overturned in 1967
California	1850	1948
Colorado	1864	1957
Connecticut	Never passed the law	Never passed the law
Delaware	1721	overturned in 1967
Florida	1832	overturned in 1967
Georgia	1750	overturned in 1967
Idaho	1864	1959
Illinois	1829	1874
Indiana	1818	1965
Iowa	1839	1851
Kansas	1855	1859
Kentucky	1792	overturned in 1967
Louisiana	1724	overturned in 1967
Maine	1821	1883
Maryland	1692	1967
Massachusetts	1705	1843
Michigan	1838	1883
Minnesota	Never passed the law	Never passed the law
Mississippi	1822	overturned in 1967
Missouri	1835	overturned in 1967
Montana	1909	1953
Nebraska	1855	1963
Nevada	1861	1959
New Hampshire	Never passed the law	Never passed the law
New Jersey	Never passed the law	Never passed the law

Appendix: (Continued)

State	Year Law Passed	Year Repealed (or overturned by the Sup. Court)
New Mexico	1857	1866
New York	Never passed the law	Never passed the law
North Carolina	1715	overturned in 1967
North Dakota	1909	1955
Ohio	1861	1887
Oklahoma	1897	overturned in 1967
Oregon	1862	1951
Pennsylvania	1725	1780
Rhode Island	1798	1881
South Carolina	1717	overturned in 1967
South Dakota	1909	1957
Tennessee	1741	overturned in 1967
Texas	1837	overturned in 1967
Utah	1852	1963
Vermont	Never passed the law	Never passed the law
Virginia	1691	overturned in 1967
Washington	1855	1868
West Virginia	1863	overturned in 1967
Wisconsin	Never passed the law	Never passed the law
Wyoming	1913	1965

Source: LovingDay.org

References

Alesina, A., and E. La Ferrara, "Ethnic Diversity and Economic Performance" Journal of Economic Literature (2005)

Carlino, G., and L. Mills "Testing neoclassical convergence in regional incomes" Regional Science and Urban Economics (1996)

Collier, P., "Ethnicity, Politics and Economic Performance" Economics and Politics (2000)

Corneo, G., and O. Jeanne, “On relative Wealth e¤ect and Long-run Growth” Research in Economics (2001)

Eastebam, J., and R. Debraj, "On the Measurement of Polarization" Econometrica (1994)

Easterly W., and R. Levine "Africa's Growth Tragedy: Policies and Ethnic Divisions" Quarterly Journal of Economics (1997)

Fearon, J., "Ethnic and Cultural Diversity by Country" Journal of Economic Growth (2003)

Fershtman, C., K. Murphy, and Y. Weiss, “Social Status, Education and Growth” Journal of Political Economy (1996)

Fershtman, C., and Y. Weiss, “Social Status and Economic Performance: A Survey” European Economic Review” (1998)

Furtado, D., “Human Capital and Interethnic Marriage Decisions" University of Connecticut, Department of Economics Working Paper 2006-3 (2006)

Gullickson, A., "Black/White Interracial Marriage Trends, 1850-2000" Journal of Family History (2006)

Holtz-Eakin, D., "Solow and the States: Capita Accumulation, Productivity, and Economic Growth" National Tax Journal (1993)

Holtz-Eakin, D., and A. Schwartz "Infrastructure in a structural model of economic growth" Regional Science and Urban Economics (1995)

Johnson, P., and L. Takeyama "Convergence Among the U.S. States: Absolute, Conditional, or Club?" Vassar College Economics Working Paper

#50 (2003)

Keefer, P., and S. Knack "Polarization, Politics and Property Rights: Links Between Inequality and Growth" Public Choice (2002)

van Long, N., and K. Shimomura, “Relative Wealth, Status-seeking, and Catching up” Journal of Economic Behavior and Organization (2004)

Mankiw, G., D. Romer and D. Wiel "A Contribution to the Empirics of Economic Growth" The Quarterly Journal of Economics

Munnell, A., "How Does Public Infrastructure A¤ect Regional Economic Performance?" Federal Reserve Bank of Boston (1990)

Pham, T., “Economic Growth and Status-Seeking through Personal Wealth” European Journal of Political Economy (2005)

Posner, D., "Measuring Ethnic Fractionalization in Africa" American Journal of Political Science (2004)

Rauscher, M., “Conspicuous Consumption, Economic Growth, and Taxation” Journal of Economics (1997)

Roodman, D., "An Introduction to "Di¤erence" and "System" GMM in Stata" Center for Global Development Working Paper Number 103 (2006)

Ruggles, S., M. Sobek, T. Alexander, C. Fritch, R. Goeken, P. Hall, and M. King "Integrated Public Use Microdata Series: Version 3.0 [machine-readable database]" Minneapolis, MN: Minnesota Population Center [producer and distributor] (2004)

Smith, A., “The Theory of Moral Sentiments” (1759). Reprinted, Indianapolis: Liberty Fund (1982)

Solow, R., "A Contribution to the Theory of Economic Growth" The Quarterly Journal of Economics (1956)