Legal Reform and Good Governance:
Assessing Rights and Economic Development in Chile

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Abstract:
Legal reforms throughout Latin America, and in particular Chile, have increased the transparency of the criminal justice process and provided new rights to defendants. Many scholars conjecture that such legal reforms improve human rights, "good governance," and by extension economic development. Despite such assertions, there are few studies that examine the specific effect of a policy reform aimed at improving legal institutions. To provide such an analysis, a fixed effects model is used to test the impact of Chile's criminal law reform on human rights and economic development. Then, reforms are examined at the regional level using the Clemente-Montañés-Reyes structural break analysis. These empirical approaches show that Chile's criminal law reform has enhanced human rights related to international standards reducing the percent of individuals incarcerated prior to conviction. The reform has had a positive effect on regional economic activity, but no effect on foreign direct investment at the regional level.

Over the last decade and a half, seventeen Latin American countries have transformed their criminal justice systems. Generally, reforms have shifted power from judges to new actors including public prosecutors and public defenders and provided defendants with oral, adversarial trials. The reforms have significantly enhanced the rights of defendants, who under the prior systems languished in jail while judges, with multiple judicial, administrative, and law enforcement duties, investigated their cases. While some of the reforms have been stymied in implementation due to a lack of resources or political will, the reforms in Chile are striking due to the breadth of changes encompassed in the reform as well as the government's commitment to the transformation of the criminal justice system. The Chilean government spent 341,000 million pesos (approximately U.S. $617 million) on the reform and estimates that more than 2% of the national budget will be allocated yearly to continue the reform process (*Ministerio de Justicia* 2008).[2]

Criminal justice reforms undertaken by Chile and other Latin American countries not only purport to enhance the transparency of the legal process and individual rights, but also provide a signal to outside investors that Chile has transparent and fair legal institutions for the adjudication of contract and property rights disputes. It is thought that good institutions and civil liberties provide for good governance which in turn improve economic development (Scully 1998; Kaufmann 2004; USAID 2005). Despite such speculation, in Latin America, legal reforms, such as those in Chile, have been driven "by a series of testable, but largely untested propositions" (Hammergren 2007: 39). The purpose of this paper is to empirically test the propositions.

Chile's Criminal Law Reforms

Chile's transition to democracy after authoritarian leader General Pinochet failed to win a plebiscite, resulted in the 1990 election of President Patricio Aylwin, who championed human rights. As part of Aylwin's initiative for dealing with Chile's transitional justice and past human rights atrocities, he created the Rettig Commission which severely criticized the Chilean judiciary's complicity in these abuses. In their report, members of the Rettig Commission emphatically suggested that international human rights standards related to criminal defendants and prisoners should be incorporated into Chile's domestic law. In this way, Chile's democratic transition provided impetus for the subsequent criminal law reforms analyzed here. For Aylwin and members of the Rettig Commission, improvement of human rights in Chile necessarily involved the improvement of rights of the most vulnerable members of society, criminal defendants.

In Chile, reforms promulgated between 1997 and 2001 moved Chile's criminal law system closer to that existing in the United States. These reforms included: 1) The creation of lower criminal *juzgados de garantía* to ensure or guarantee the rights of the defendants during their criminal investigation and to considerably reduce pre-trial detention times, 2) The creation of collegial courts, *juzgados de juicio oral*, to conduct oral criminal bench trials and review evidence presented at such trials, 3) The creation of national, regional, and local prosecutors, accomplished through Constitutional changes, making the *Ministerio Público* an independent governmental institution, 4) The creation of a public defender agency, and 5) The creation of a revised penal code, the *Codigo Procesal Penal* [CPP], which defines new rights and procedures for defendants and victims in criminal proceedings and defines functions and limitations for judges, prosecutors, public defenders, and the police during criminal proceedings.[3]

Although all of Chile's criminal law reforms were approved by 2001, the laws themselves provided for gradual implementation. The new CPP, although effective in October of 2000, allowed for the new process to be implemented in stages by region over a five year period. The first stage of the reform was implemented in Serena (Region IV) and Araucanía (Region IX). The final stage of the reform was completed by mid-June 2005 in Santiago, the most populated area in the country.[4] In August of 2001, the legislature revised the schedule of implementation making the Santiago metropolitan area the last region for implementation.[5] The timetable of the reform as well as a map of Chile's regions are found in Figure 1 and Table 1 respectively. As the new reform was phased in, the old system was phased out such that non-reformed courts still applied the pre-reform law to existing cases through 2008.

[Insert Figure 1 and Table 1]

The new reforms significantly changed the structure, power, and function of the lower criminal courts making them more accountable and focused on defendants' rights. In place of the traditional court of *juzgado de crimen* with its *juez de instrucción*, the reformers instead created two new criminal courts to oversee the preliminary matters and oral trials in criminal cases. With the new reform and the creation of a true public prosecutor's office (*Ministerio Público*), judges no longer conduct criminal investigations or routinely oversee the staff and administration of the court as they had under the former system.

The first new type of court created is the *juzgados de garantía* or courts of guarantee where a criminal defendant's journey begins. Judges of guarantee or *jueces de garantía* primarily ensure the rights of the defendant and other interveners, such as victims, in the preliminary phase of the investigation.[6] They also ensure that all time limits related to defendants' incarceration are followed. Besides guaranteeing individual rights, *jueces de garantía* also are involved in making legal decisions about preliminary matters and preparing the

3

case for the oral trial by holding hearings, correcting any mistakes in legal papers, and excluding or admitting evidence.[7] At the conclusion of this phase, the judges will dictate *el auto de aperatura de juicio oral* which formally moves the case from the *juzgado de garantía* to the *juzgado de juicio oral.*

The second new court established under the reform, *Tribunal de Juicio Oral en lo Penal,*[8] is a separate court tasked with hearing oral criminal trials. Each case is heard by a three judge panel. The three judges do not include the *juez de garantía* and are unfamiliar with the case until they receive the file from the prior court. The use of three judges, deciding a defendant's culpability, eliminates any bias that one judge may have and is intended to provide impartiality. The *Tribunal de Juicio Oral* has several distinct functions relating to the oral trial.[9] The collegial court resolves any issues arising during the oral trial, conducts the debate, exercises disciplinary means if needed, asks questions of witnesses, authorizes the reading or reproduction of documents, and makes decisions regarding the reception of new evidence presented by a party. Finally, the judges determine the guilt or innocence of the defendant and the applicable sentence, if any.[10] The proceedings are entirely public and similar to western style bench (without jury) trials.

The reform also created a completely new institution, *la Defensoría Penal Pública* or Public Defenders' Office[11] to provide competent criminal defense for defendants charged with crimes or appearing before lower criminal courts who need an attorney, but lack the resources.[12] Besides creating a public defender service, the new criminal reform also substantially improved the rights of defendants by providing criminal defendants with new substantive and procedural rights. Judges must now see defendants within twenty-four hours of their arrest. At every stage of the process, defendants have additional new rights including the right to be presumed innocent, the right to a *defender de confianza*[13] (licensed lawyer), a right to an oral public trial,

the right to intervene in the entire process, a right to immediately know the charges against oneself, the right to contradict allegations and the right to review the prosecutor's file. There are strict time limits for defendants' incarceration essentially ensuring defendants a right to a speedy trial. In the pre-reform system, individuals in pretrial detention or *procesados*, who constituted about half of the incarcerated population, had no time limits to their incarceration (Riego 1998: 440).

Although Chile's criminal law reforms were part of a wave of similar reforms across Latin America (Langer 2007),[14] Chile's government spent far greater resources on constructing new courts, such as the *Centro de Justicia* in Santiago, and training lawyers and judges to staff the newly created institutions. Further, in order to ensure the public's acceptance of the cost and substance of the reforms, the government launched an extensive advertising campaign. The government committed millions of dollars to initially implement the reform and to ensure its continued success.

Literature Review

Scholars have largely speculated as to the effect of legal institutions and reforms on democratic and economic development. Some scholars focus on the direct benefits of legal reforms, while others speculate on the indirect benefits of reform. Some scholars posit that reforms have direct and specific effects on human rights. Others assert that a wide variety of legal reforms indirectly affects economic development because they signal a government's credible commitment to a more open society with high functioning institutions. Within each of these two areas there is rigorous debate as to whether reforms positively or negatively affect the variable of interest or whether reforms have no impact whatsoever. The following literature review includes a discussion of two empirical puzzles related to the effects of reforms seen to enhance human rights.

First, scholars debate whether reforms related to human rights are effective. In Chile, legislators intended the reforms to modernize the criminal justice system in order to make it current with constitutional and international human rights norms (Venegas & Vial 2008). Riego (1998) asserts that one justification for the Chilean criminal law reform was to reduce "restrictions of the people's rights (especially a shortening of time in prison)" (p.446), although he acknowledges that the reform was based on a compromise between those who wanted to improve human rights and those who supported public safety.   Similarly, criminal law reforms throughout Latin America have been justified on the grounds that "the accusatory system is less abusive of human rights, less expensive, more likely to get at the truth of the matter, more effective in bringing the guilty to justice, more transparent, and more timely" (Hammergren 2007: 39). Scholars commenting on criminal law reform in Latin America (Langer 2007) show that reforms were motivated in part by a desire to improve human rights in these countries.

While generally, scholars assert that reforms will positively affect human rights as intended, a minority of scholars are skeptical whether reforms actually work, in light of an entrenched legal culture and a population that is resistant to change. Writing more generally about legal reforms instituted during the law and development movement of the 1960s and 1970s, Merryman (1977) noted that a few people believed that the reforms would result in only minor changes to society.[15]   Hammergren (2007) is especially skeptical that criminal law reforms in Latin America will achieve their intended results. She notes that reformers had "excessive faith" that law could change behavior and "excessive reliance" on the proposition that adversarial systems were much better at delivering justice than inquisitorial systems (38-39). She further noted that reforms were hindered by problems related to adopting legislation from other countries, failing to implement complementary legislation and errors and oversights.

6

Despite the debate over whether reforms achieve the direct human rights benefits intended, there is little empirical work on the subject.

The second empirical puzzle addressed by scholars questions why reforms that enhance human rights would also enhance economic development. It is generally accepted by political scientists and economists that a system of property rights enhances long run economic growth (Knack and Keffer 1995; Scully 1988; Barro 1997; Clague et al. 1996, 1999; Zak and Knack 2001; Keefer & Knack 2002; Keefer 2007; Asoni 2008). Further, recent literature on the effect of institutions and long run growth asserts that protection of these rights also leads to growth (Acemoglu et al. 2001; Acemoglu & Johnson 2005). The question emerges that if property rights can effectively lead to economic growth, why would human rights protections similarly do so? While some scholars believe that there is no link between human rights and economic growth (Dam 2006; Messick 1999:119; Tshuma 1998: 8), there are a group of scholars who find an indirect link between human rights and economic growth. Accordingly, there are three indirect channels connecting rights of criminals to economic development as diagrammed in Figure 2.

The first relationship shows that the classic human rights (such as rights for defendants in criminal proceedings) result in a demand for what are called second generation or socio-economic rights (Meyer 1998; Kauffman 2004; and Isham, Kaufmann & Pritchett). The demand for this second type of rights spurs governments to implement policies to increase economic development. Isham, Kaufmann & Pritchett (1997) connect the extent of a county's civil liberties to economic development by showing that civil liberties have a substantial impact on the successful implementation of government investment projects financed by the World Bank. Building on Meyer (1998), Kaufmann (2004) refines this argument by showing that first generation human rights (political and civil rights and liberties including rights of criminal

defendants) enhance second generation human rights (socio-economic) which in turn improve governance leading to economic development. Kaufmann further posits that first generation human rights can be undermined by corruption or the misrule of law which in turn would undermine economic development. Further, under the rubric of "good governance," some scholars claiming that while it is not possible to establish that well functioning legal systems are necessary conditions for a wealthy nation, there is some evidence showing that "rule of law" contributes to good governance and is related to a nation's wealth and economic growth (Kaufmann 2004; Knack 2006; Kaufmann & Kray 2002; USAID 2005). [16]

In an empirical study linking both rule of law and civil liberties to economic growth, Scully (1998), in a cross country comparison of 115 market economies, shows that politically open societies, based on civil rights and the rule of law, private property rights, and market resource allocation, grow at about three times the rate of other countries without these attributes. Further, the recent World Bank scholarship asserts that rule of law, defined broadly as confidence in legal rules, likelihood of crime and enforcement of contracts and property rights, improves good governance and economic development (Knack 2006; Knack and Keefer 1995).

The second relationship diagrammed shows that respect for human rights increases productivity at the local level which leads to economic development. If the rights of defendants are well respected individuals will not unjustifiably languish in jail. Lengthy criminal detentions without the proper constitutional safeguards result in individuals remaining in jail for long periods of time causing them to lose their jobs. By affording individuals rights generally afforded to criminals in Western democracies, detained workers can return to their jobs more quickly despite criminal behavior. As a result, the enforcement of criminal rights ensures that production is not delayed or suspended.

The third indirect relationship between rights and economic development diagrammed in Figure 2 shows that a government's credible commitments to rights in general should induce foreign investors to invest in a country with the assurances that their rights will be respected as well. Echoing North's (1990) assertion that the quality of governmental institutions affects economic development, several scholars claim that reforms that generally improve legal and judicial institutions indirectly, but positively, affect economic development (Sen 2000; Drèze & Sen 1995). For Weingast (1997), ruler's can choose to either respect the rights of citizens or transgress them. For economic growth to occur, governments must not merely establish the relevant rights, but also make a credible commitment to them (see also Olson 1993; McGuire & Olson 1996). Although Weingast's logic refers to property rights, the idea of credible commitments could also apply to human rights. If governments credibly commit to the rights of the lowest members of society – criminal defendants – this would signal to foreign investors that their rights would likewise be respected.

Despite the general optimism connecting human rights to economic development, other scholars are quite skeptical. Some of these scholars argue that legal reform unrelated to economics *per se* can actually undermine economic development (Pistor 2002; Berkowitz, Pistor & Richard 2003). In fact, one of the main conclusions of the earlier law and development movement was that transplanting legal systems to Latin Americas was seen as "ineffectual and harmful" because American lawyers were unfamiliar with the Latin American legal culture and institutions (Merryman 1977: 481). Posner (1998) is one of the few scholars that specifically analyzes the effect of criminal law reforms on economic development. Like other scholars, who find that general law reforms undermine economics in certain instances, Posner finds that "[a]s for granting extensive rights to criminals, this is bound to undermine the efficacy of the criminal laws, and by doing so, unsettle property rights" (at 9). He also claims that having more rights

9

makes it "harder to convict the guilty as well as the innocent" and reform of this type is costly (at 9).

Data and Methodology

There are few empirical studies testing the effect of legal and judicial reforms on observable outcomes (Hammergren 2007; McAuslan 1997). This paper contributes to the scholarly literature on legal reform and development by statistically analyzing the effect of the criminal law reform in Chile's thirteen regions. Chile's conversion from an inquisitorial to adversarial criminal law system was implemented by region over time providing the perfect framework for a quasi-experiment using panel data. For experimental analysis, the control groups are the regions where the reform was not implemented and the treatment groups are those where the reform was implemented at given time periods. For example, all the regions are control groups for the years 1991 to 1999 as the reform was not implemented until 2000. In December 2000, the reform only occurred in Regions IV and IX, so these are the only two treatment groups for this fraction of a year and the other regions provide control groups for comparison. For each subsequent year until 2005, treatment groups are added to the analysis. The metropolitan area of Santiago was the last region to receive the reform in mid-June 2005. By 2006, all regions had received the reform. The data is organized as a panel study which pools observations for regions and years into one database for each dependent variable.[17]

The dependent variable for the human rights side of this analysis is the log of the number of individuals incarcerated prior to trial in Chile by region from 1991 to 2007. For interpretation of the coefficients, the logged dependent variable will refer to the percent change in the number of individuals incarcerated. While indicators that purport to measure human rights are available from such organizations as Freedom House, there are no regional human rights measurements. As a result, for purposes of this paper, the rights of defendants are measured by the percent

10

change in the number of individuals incarcerated in Chile's prison by region. The number of

individuals incarcerated prior to conviction is a fair measure of defendants' rights as one of the

corner stones of the reform was to ensure that defendants did not remain in jail for long periods

of time while their cases were being investigated and tried.   Further, number of incarcerated is

often included in established measurements of human rights (See Kaufmann 2004: 3; Freedom

House 2008).

The number of individuals incarcerated is broken into two types of detainees and each

category constitutes a separate logged dependent variable. The first group, *detenidos,* refers to

individuals who are initially detained for no more than five days by the *Gendarmería* prior to

their first court appearance. *Procesados* constitute the second group of detainees who are held

by the *Gendarmería* after the court has begun a criminal process or declared the defendant

officially accused of a crime until a verdict is rendered. *Procesados* are the largest group of

individuals incarcerated in Chile, constituting about half of the detained population (Riego 1998:

440). Reformers viewed this group as the one perceived to have suffered the most from a lack of

rights under pre-reform Chile, as *procesados* had to wait months and often years to have formal

charges brought against them to reach a verdict. During this time, *procesados* often lost their

jobs and certain rights such as the right to vote (Riego: 440). The incarceration data for the

years 1991 to 2007 was collected from yearly *Compendios Estadísticos de la Población*

Atendida por Gendarmería de Chile found in the library of the *Gendarmería de Chile* in

Santiago in July of 2007.

There are two dependent variables used to test the impact of the reform on economic

development. The first dependent variable from the Chilean government is the Regional

Economic Activity Index or INACER that measures rates of stagnation and acceleration in select

productive sectors. INACER includes measurements for twelve of the thirteen regions from

1996 to 2006. It does not include a measure for Chile's largest region, the metropolitan Santiago region.

The second dependent variable related to economics is regional foreign direct investment or FDI. This information was available for the years 1990 to 2006 from publications of the Foreign Direct Investment Committee of the Central Bank of Chile. Regional FDI was reported in terms of thousands of U.S. dollars (nominal). It was converted to pesos by using the annual exchange rate reported by the Central Bank and then deflated with a GDP deflator available in the *Cuentas Nacionales* for gross domestic product.

Both the deflator and regional GDP (used as an independent variable in this study) were reported using different base years for segments of the study.   For example, the deflator and GDP for the years 1990 to 1995 were reported using a base year of 1986, the deflator and GDP for 1996 to 2003 were reported using a base year of 1996, and the remaining data used a base year of 2003. Fortunately, the base year listings provided one year of overlap such that data for 1996 was reported using base years 1986 and 1996 and data for 2003 was reported using base years 1996 and 2003. In this way, the GDP and deflator have all been converted to reflect the single base year of 1996.

Data for the independent variables was collected from the following sources:

1) Gross National Product by region from the Central Bank's *Anuario de Cuentas Nacionales.*

2) Population estimate by region from the *Instituto Nacional de Estadísticas, Proyecciones de Población de Chile Hace 2050.*

3) Reform in each region was coded using criminal reform legislation and amendments.

The independent variable of reform was analyzed in two ways. In the first instance, reform was coded as a dummy variable of zero or one. Fractions were used if the reform occurred in the

middle or end of a year. Constructing the dummy variable in this way, conceives the reform as causing a single abrupt jump in the dependent variable and then the effects of the reform level off. In other words, there is a jump or shift in the constant term of the regression. In the second instance, reform is modeled as having a cumulative effect and therefore reform is counted as one if the reform occurred in the first year, two if it occurred in the second year and so on until seven, the seventh year of the implementation of the reform. Reform as a counter implies that reform occurs as a gradual process or trend. Figure 3 compares the two conceptions of reform.

[Insert Figure 3]

A Panel Study Using Fixed Effects

The research design used for this analysis is a non-equivalent group design with both pre-test and post-test observations. Because Chile's criminal law reform was implemented by region over time, there are groups of regions that received the reform or treatment co-existing with groups of regions that did not receive the reform. Fixed effects analysis is used to control for regional variations. Further, dummies for each region and each year have been added to the regressions to account for the differences in the regions. Each form of the regression is run using either the "REFORM" as a dummy variable or reform as a counter.

The specification for the fixed effects model for incarceration is as follows:

$$\log(\text{Incareration}_{it}) = \beta_o + \beta_1 \text{REFORM}_{it} + \beta_2 \log(\text{GDP}_{it}) + \beta_3 \log(\text{population}_{it}) + \Sigma(\text{years}) + \Sigma(\text{regions}) + \alpha_i + \nu_{it}$$

Incarceration refers to either of the two incarceration variables (*detenido or procesado*).

Variables have a region (*i*) and time *(t)* index.

The two fixed effects specifications for economic development are as follows:

13

$$\log(FDI_{it}) = \beta_o + \beta_1 REFORM_{it} + \beta_2 \log(GDP_{it}) + \Sigma(years) + \Sigma(regions) + \alpha_i + \nu_{it}$$

and

$$\log(INACER_{it}) = \beta_o + \beta_1 REFORM_{it} + \beta_2 \log(GDP_{it}) + \Sigma(years) + \Sigma(regions) + \alpha_i + \nu_{it}{}^{18}$$

By pooling the data together into one panel, there are enough observations to test hypotheses regarding the effect of the reform. The shortcoming of such an approach, however, is that it does not provide for an analysis of how the reform works in specific regions. Although Chile is not a federation, the reform was not introduced in all regions at one time. Therefore, it can be expected that the reform had different effects on different regions depending on the quality of judicial institutions in the various regions. Furthermore, judges and legal professionals who reformed late in the process could use the knowledge they gained from their counterparts in regions that reformed early.

Structural Break Analysis

While the above fixed effect model has the advantage of pooling data together to test hypotheses, a structural break analysis focuses the analysis on how regions responded specifically to reform. To determine whether the reform had an effect at the regional level, a structural break analysis was done for each logged dependent variable for each region. In this part of the analysis, the Clemente, Montañés, Reyes (1998) unit root test allows the effects of the reform to be tested in each region individually by searching for changes or breaks in the trend or generating function in a time series. In implementing each test, the Additive-Outlier (AO) and Innovative-Outlier (IO) are used (Perron 1989). The AO model is used to test whether structural breaks are sudden and abrupt. The IO model, in turn, demonstrates whether there is a gradual shift in the mean of the dependent variable. In conducting these tests, analysts are looking to see whether the break has a statistically significant t-statistic and whether such "optimal break" occurs at or near the time of the reform. If optimal breaks are significant and occur at or near the

reform for each region, this means that there is some evidence that the reform had a significant impact on the dependent variable in that region. If optimal breaks are not significant and/or do not occur near the reform's implementation, than this implies that the variables analyzed are relatively stable and that the reform had little effect.

Results and Implications

This paper tests the effect of Chile's criminal law reform on both defendants' criminal rights measured by the percent change in the numbers of individuals incarcerated and economic development measured by the percent change in economic activity and regional foreign direct investment. For each version of the model, reform is specified as a dummy variable and as a counting variable. While the results show some statistically significant effects on percent change of those incarcerated, the coefficients are largest for *detenidos* than other groups of detainees. The reform appeared to have no statistically significant effect on regional FDI, but did affect regional economic activity.

Defendants' Rights

As stated from the onset, one of the cornerstones of the reform was to limit the amount of time that individuals remained in jail while their case was being processed by overburdened judges who in the pre-reform system were tasked with investigation, prosecution, review of evidence for determinations of guilt or innocence and the sentence. The results show that the reform in many instances resulted in a negative percent change in the number of individuals incarcerated. In other words, the reform reduced the number of individuals waiting to have their case heard as intended by the legislators of the reform. Reducing the number of individuals incarcerated is viewed as having a positive effect on human rights.[19]

To interpret the effect of the reform on the logged dependent variables, the coefficient for reform for each of the equations was transformed using the following equation: [exp –(reform

15

coefficient) -1] (Wooldridge 2003: 464). For *detenidos*, those individuals waiting to appear

before a judge within the first five days of being incarcerated, the reform had the largest effect as

compared to other groups of incarcerated individuals. Specifically, when reform was modeled as

a constant shift, the reform resulted in a reduction in *detenidos* of 42% and this coefficient was

significant. When reform was modeled as a trend, the reform still had a statistically significant

effect, but only reduced *detenidos* by 21%. As seen in the results in Table 2, the other

independent variables in the regression were not statistically significant.

[Insert Table 2]

For *procesados,* individuals waiting from the period of initial appearance before the

judge until the rendering of a verdict, the effect of the reform was only significant when reform

was modeled as a constant shift.   In this instance, reform resulted in a 13% reduction in the

number of *procesados*. This result shows that the reform impacted the largest part of the

incarcerated population as intended by legislators.

[Insert Table 3]

Taken as a whole, the results show that Chiles' criminal law reform had a statistically

significant impact in the number of individuals detained prior to sentence. Over time and with

the availabilty of more data, this impact may become more significant. Because there was

insufficient data to conduct separate time series analyses for each region the Clemente-

Montañés-Reyes structural break analysis was used. For this test both the AO model testing for

sudden structural breaks and the IO testing for more gradual structural breaks are analyzed. This

type of analysis provides some evidence that reform caused a structural break in the time series.

Structural breaks at or near the time of the reform are most apparent for the percent

change of *detenidos* as compared to *procesados*.   Using the AO analysis for sudden structural

breaks, there are three regions which experienced a statistically significant structural break in the

same year that the reform was implemented in that region. Regions 3 had an optimal break in 2001, the year of the reform in that region. Region 5 includes Chile's second largest city, Valparaiso and showed a structural break in 2003, the same year of the reform for that region, and region 11 also experienced a sudden structural break for its reform year of 2002. The graph for region 5 is at Figures 3.

[Insert Figure 3]

The remaining structural breaks using the AO analysis for *detenidos* revealed that a statistically significant optimal breakpoint was within two years of the reform in the remaining seven of ten regions. Of these breaks, six showed optimal breaks one or two years after the reform had occurred. Only in Santiago's regional metropolitan area, region 13, did the AO analysis reveal a structural break in 2003, two years prior to the actual reform which occurred in 2005. Structural breaks occurring before the actual reform, such as the case of Chile provide some evidence that the reform was anticipated. In the case of Santiago, this is feasible as Santiago was originally supposed to reform in 2004 until the legislature changed the timetable to 2005 (see footnote 4). Further, Santiago was the very last region to receive the reform and judges there had been watching courts in other regions implement it for over five years. Structural breaks occurring after the actual reform, as in eight regions, may show that the reform took time to have an effect in some regions while judges, new prosecutors, and public defenders learned how to implement it.

For *detenidos*, the IO analysis showing gradual structural breaks is similar to the AO analysis. For this dependent variable, a statistically significant optimal break year coincided with the reform only in region eight. All of the other regions showed statistically significant breaks within two years of the reform. Eight of these optimal breaks occurred prior to the reform

17

being introduced in the region, while four (including that in Santiago) revealed optimal breaks after the reform had been introduced.

[Insert Table 4]

The results of the AO and IO structural break analysis were different for the change in percent of *procesados* as compared with *detenidos* (see OA Table 2) The AO analysis for *procesados* revealed that only region 11 had a significant structural break in the year of that reform. Of the remaining twelve regions, regions, 2 and 8 had significant structural breaks after the reforms occurred in those respective regions. Similarly for the IO process, only region 2 had an optimal break occurring in the same year as the reform. Further for the IO process there were three additional regions where significant breaks occurred within at least two years of the reform. In region 1, the IO analysis revealed an optimal break year of 2003, when the reform occurred in this region in 2002. In region 5, the optimal break year was 2001, with the reform occurring in this region two years later. Finally, in region 11, the optimal break occurred one year after the reform in 2002. These results show that the time series associated with *procesados* are largely stable and seem to confirm the regression results showing that the reform had a smaller impact on the number of individuals incarcerated as *procesados* as compared to *detenidos*.[20]

Economic Development

While the reform had some effect on the percent of individuals incarcerated in Chile, it had less of an apparent effect on economics.   In the first instance, using the INACER indicators measuring regional economic activity in all regions but the Santiago Metropolitan Region, the criminal law reforms resulted in a statistically significant but small improvement in economic activity in the productive sector. The amount of improvement was 1% and the coefficient for INACER was only significant when reform was modeled as a time trend (See Table 5).

However, the structural break analysis, indicated that optimal structural breaks occurring in or

18

near the year of reform were significant for all the regions using the AO analysis and for a majority of the regions using the IO analysis. This indicates that the data was not stable and is evidence that the reform impacted economic activity at the regional level. One possible reason that criminal law reform affected the productive sector is that under the new laws, individuals returned to work at productive sector jobs more quickly under the reform, rather than languishing in jail while they waited for their case to be processed under the former system.

[Insert Table 5]

In the second instance, using FDI data, the reform modeled as a constant shift or a trend had no effect on the percent change of regional FDI.[21] Although the link between legal reforms and economic development has been established in some of the literature, the empirical link between criminal law reforms specifically and FDI seems to be non-existent in the case of Chile when the data is pooled in the panel (See OA Table 4)

The structural break analyses show that the time series for regional FDI are generally stable. For the AO model, regions 7, 9, and 10 showed significant structural breaks within two years of the reform. For the IO model regions 7 and 9 have structural breaks within two years of the reform. However, for the vast majority of regions, including the largest one containing Santiago, the reform seems to have had little impact on regional FDI (See OA Table 5). The reforms' lack of effect on FDI is not surprising due to Chile's general economic fortitude in the region. Foreign investors consistently invested in specific projects and regions in Chile since the return to democracy in the early 1990s. Furthermore, foreign investment tends to be applied when economic opportunities arise periodically rather than at a constant and increasing rate.

The small effect of criminal law reforms on economic activity in the productive sector and the non-existent effect on FDI imply that not all legal reforms in new democracies have an overwhelming economic impact as suggested by some scholars who seem to imply that any legal

reform resulting in a more open system, should assist in economic development (USAID 2005).

Rather, these results seem to support Posner's (1998) assertion that there is no direct link

between criminal law reforms and economic development. This is not to say that other legal

reforms would not bolster the economy, but rather that reforms need to be related more closely to

issues of economic concern such as enforcement of contracts and property rights. Further,

Chile's reform did not substantially change the substantive law as to economic crimes, rather

legislators were more generally concerned with reforming the criminal process and enhancing

defendants' rights.

Conclusion

Scholars debate the relationship between legal reforms and human rights and economic

development respectively. The effect of legal reform is seen to have either no effect, a negative

effect, or a positive effect on human rights or economic development. Some scholars indicate

that improved human rights or liberties leads to improved governance, which in turn leads to

economic development. Despite the dearth of conjectures, one issue that is not debatable is the

lack of empirical work in this area (Hammergren 2007; McAuslen 1997). The main

contribution of this paper is to test the effect of a specific governance reform on available human

rights and economic data. Rather then simply describing the reform or making conjectures about

its effect, I have sought to test it empirically.

In general, the criminal law reform affected the percent of individuals incarcerated. Of

the two groups analyzed the effects had the largest magnitude in relation to *detenidos*,

individuals waiting to see judges within five days of their arrest. The reform had a less

pronounced effect on *procesados* to whom much of the reform was directed. However, just

because the impact was smaller for *procesados* than *detenidos*, this does not mean it was not

effective. Considering the short span that the reform was in existence, a 13% decrease of Chile's

most vulnerable and largest group of detainees, suggests optimism as most legal reforms rarely result in enormous changes and even reforms that are significant may take time (Dam 2006). In the case of Chile, the data sets used here contain observations through 2007 providing two and half years of data in which the reform had been in place in all regions. Furthermore, as stated by the legislature, a few courts still operating under the old system will not be phased out completely until 2008. Therefore, some non-reformed institutions still have an impact on Chilean courts' incarceration decisions. As a result, the impact of Chile's reform on incarceration, although small now, may increase after the reform has been in place across the country for many years.

The effect of criminal law reform on economic development has been until now merely conjecture. This analysis has shown that the effect of general reforms in criminal process have had less effect on economic development than on the rights of criminal detainees.. Measuring economic activity with regional indicators for the productive sector resulted in a 1% improvement, but only when the reform was modeled as a trend. The effect of the reform on economic activity is more apparent when regions are analyzed using the AO and IO analyses. These results lend some evidence to the theory that improved rights of detainees may lead to a more productive labor force. Whether improved criminal rights is a signal to foreign investors that the Chilean government is committed to respecting the rights of foreign investors did not show much support. Using FDI data, improvement in the rights of criminal detainees did ndot impact FDI. Such a result should not be entirely surprising as criminal law and economic development seem to be more significantly related when a country has no security measures to protect private property or when the prosecution of economic crimes is being discussed. Further, more general criminal process reforms, such as those undertaken by Chile are not substantively related to economic development. The results here seem to support the general position of

Posner (1998), who sees no real theoretical connection between criminal law reform and economic development. However, the results do not lend support to Posner's assertion that an increase in rights for criminal defendants could actually undermine economic development.

<center>***</center>

Legal reforms have transformed Latin American criminal justice systems dramatically. Without doubt they have provided defendants with more actual rights. The rights on paper have been confirmed in practice with lower numbers of detainees who have not been convicted languishing in jail awaiting the judicial process. The reforms also elevated the role of courts to a higher status within Latin American governments who are expending vast resources on them. Despite these gains in human rights, it would be premature to assume that reforms to the criminal justice process could significantly transform the economy overnight.
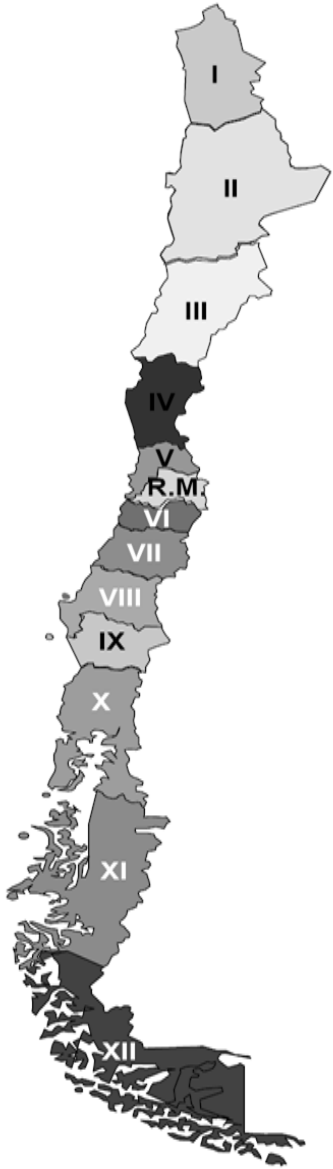
Figures

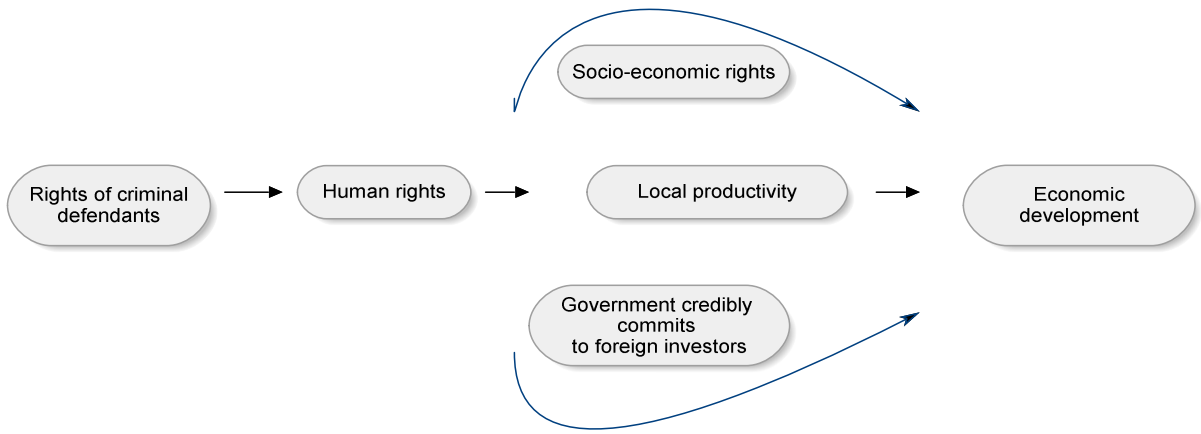| TABLE 1. TIME TABLE FOR CHILE'S CRIMINAL LAW REFORMS	
DATE	REGION
12/2000	IV, IX
10/2001	II, III, VII
12/2002	I, XI, XII
12/2003	V, VI, VIII, X
6/2005	Metropolitan Santiago (R.M.)

Figure 1. Map of Chile's regions.
(Source: INE)

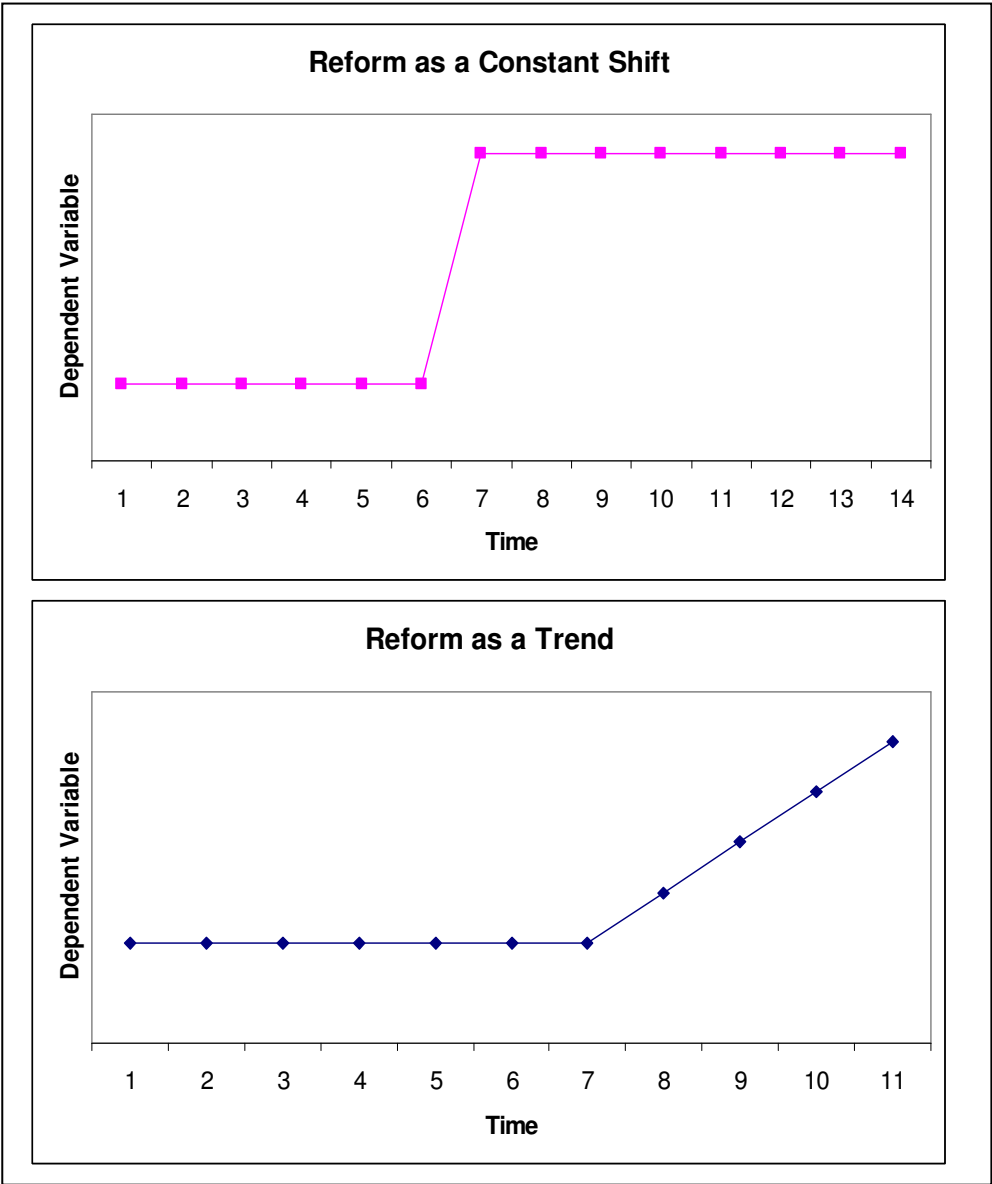**Figure 2. Theoretical connections between criminal rights, human rights and economic development**

Figure 3. Conceptions of Reform Compared

Clemente-Montañés-Reyes single AO test for unit root
in series: ldetenido

D.ldetenido
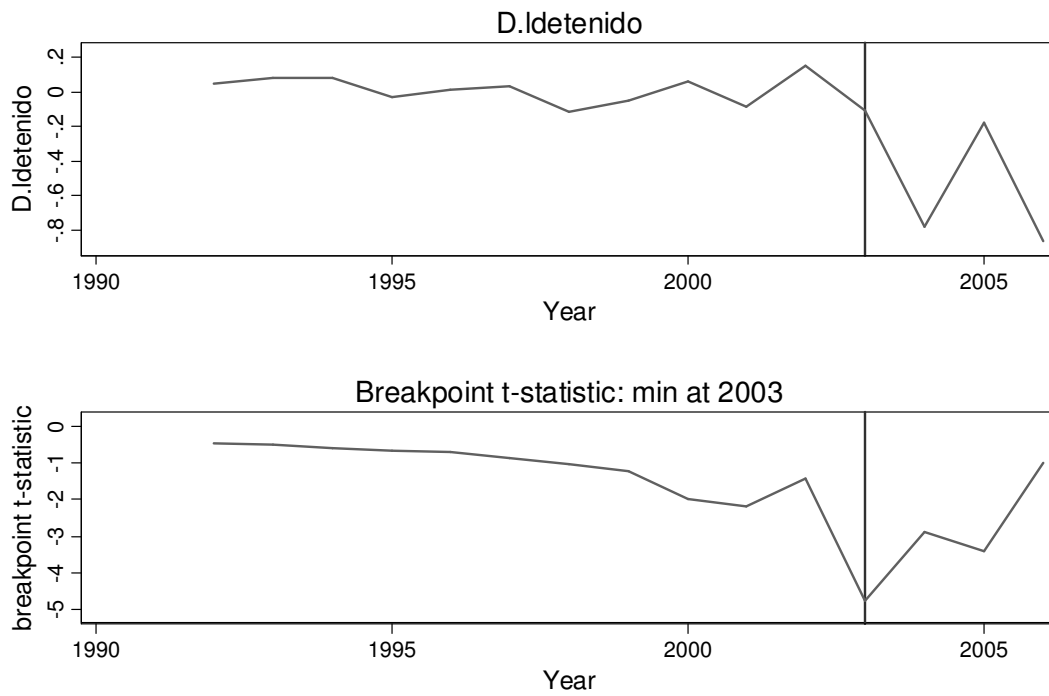

Breakpoint t-statistic: min at 2003

Figure 3. Structural Break in the percent change of *Detenidos* in Chile's Region 5

Table 2: Percent change in *detenidos*

Regression equation: $\log(detenidos_{it}) = \beta_o + \beta_1 REFORM_{it} + \beta_2 \log(GDP_{it}) + \beta_3 \log(population_{it}) + \Sigma(years) + \Sigma(regions) + \alpha_i + \nu_{it}$

Reform as:	as constant shift		as trend	
	Coefficient (s.e.)	**p-value** (95% C.I.)	**Coefficient** (s.e.)	**pvalue** (95% C.I.)
Reform	**-0.55*** (0.09)	0.00	**-0.24*** (0.05)	0.00
Log(GDP)	0.36 (0.68)	0.53	0.37 (0.80)	0.65
Log(pop)	4.20 (2.64)	0.11	4.03 (3.21)	0.21
R^2	0.84		0.79	
N	221		221	

Note: Estimates made using panel corrected standard errors. Results for year and regional dummies for all regressions are not reported, but are available from authors. Coefficients in bold are significant at p<0.10, *p<0.00

Table 3: Percent change in *procesados*_____

Regression equation: $\log(\text{procesados}_{it}) = \beta_o + \beta_1\text{REFORM}_{it} + \beta_2\log(\text{GDP}_{it}) + \beta_3\log(\text{population}_{it}) + \Sigma(\text{years}) + \Sigma(\text{regions}) + \alpha_i + \nu_{it}$

Reform as:	as constant shift		as trend	
	Coefficient (s.e.)	p-value (95% C.I.)	Coefficient (s.e.)	pvalue (95% C.I.)
Reform	**-0.13*** (0.03)	0.00	0.00 (0.02)	0.94
Log(GDP)	-0.15 (0.23)	0.53	-0.09 (0.25)	0.71
Log(pop)	0.33 (0.98)	0.74	0.35 (0.25)	0.76
R^2	0.97		0.97	
N	221		221	

Note: Estimates made using panel corrected standard errors. Results for year and regional dummies for all regressions are not reported, but are available from authors. Coefficients in bold are significant at p<0.10, *p<0.00

Table 4. Structural Break Analysis: DV= log (detenido)

Region	year of reform	AO p-value	IO p-value
Region 1	2002	0.00*	0.00*
Region 2	2001	0.01*	0.00*
Region 3	2001	0.00**	0.00*
Region 4	2000	0.00*	0.00*
Region 5	2003	0.00**	0.30*
Region 6	2003	0.00**	0.00*
Region 7	2001	0.00*	0.00*
Region 8	2003	0.01	0.00**
Region 9	2000	0.00	0.00*
Region 10	2003	0.00*	0.00*
Region 11	2002	0.00**	0.00*
Region 12	2002	0.00*	0.00*
Region 13	2005	0.01*	0.00*

** = optimal and significant break point and year of reform coincide

* = optimal and significant break point is within two years of reform (prior to or after)

p-value is underlined if structural break coincided with year of reform, but was not significant.

Table 5: Percent change in regional INACER

Regression equation: $\log(FDI_{it}) = \beta_o + \beta_1 REFORM_{it} + \beta_2 \log(\text{population}) + \Sigma(\text{years}) + \Sigma(\text{regions}) + \alpha_i + v_{it}$

Reform as:	as constant shift		as trend	
	Coefficient (s.e.)	**p-value** (95% C.I.)	**Coefficient** (s.e.)	**pvalue** 95% C.I.)
Reform	0.00 (0.01)	0.90 (-0.02 to 0.22)	**0.01*** (0.01)	0.06 (0 to 0.02)
Log(pop)	**2.36** (0.72)	0.00 (0.95 to 3.78)	**2.36** (0.74)	0.00 (0.91 to 3.80)

Note: Estimates made using panel corrected standard errors. Results for year and regional dummies for all regressions are not reported, but are available from authors. Coefficients in bold are significant at p<0.05 and *p<0.10.

Table 6. Structural Break Analysis: DV= log (INACER)

Region	year of reform	AO p-value	IO p-value
Region 1	2002	0.032*	0.041
Region 2	2001	0.003**	0.023*
Region 3	2001	0.006*	0.059*
Region 4	2000	0.021*	0.000*
Region 5	2003	0.012*	0.056*
Region 6	2003	0.002*	0.019**
Region 7	2001	0.003*	0.030*
Region 8	2003	0.000**	0.033*
Region 9	2000	0.000*	0.011*
Region 10	2003	0.001*	0.189
Region 11	2002	0.004**	0.156
Region 12	2002	0.062*	0.910

** = optimal and significant break point and year of reform coincide

* = optimal and significant break point is within two years of reform (prior to or after)

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[2] Chile's Ministry of Justice estimated that the implementation of the reform cost 341,000 millions of pesos broken down as follows: 180,000 millions of pesos to the judicial branch, 131,000 millions of pesos to the Ministry of Justice and 30,000 millions of pesos to the Public Defender. Finally, in 1999, the government estimated that 0.9% of the national budget was spent on the reform. From 2000 and on, the government indicated that it will spend 2% of the national budget on reform.

[3] Ley No. 19.665 Reforma el Código Orgánico de Tribunales (Publicada en el Diario Official el 09 marzo de 2000) [Ley No. 19.665]; Ley No. 19.708 Adecua la Ley No. 19.665, que modifica el Código Orgánico de Tribunales, al Nuevo Código Procesal Penal (publicada en el D.O. el 05 de enero de 2001) [Ley No. 19.665]; Ley No. 19.519 Reforma Constitucional que crea el Ministerio Público (publicada en el D.O. el 16 de septiembre de 1997) [Ley No. 19.519]; Ley No. 19.640 Establece la Ley Orgánica Constitucional del Ministerio Público (publicada en el DO el 15 de octubre de 1999) [Ley No. 19.640]; Ley No. 19.718 Crea la Defensoría Penal Pública (publicada en el D.O. el 10 de marzo de 2001) [Ley No. 19.718]; Ley No. 19.696 Codigo Procesal Penal (publicada en el DO 12 de octubre de 2000) [CPP].

[4] In the original legislation, the implementation was supposed to occur quite a bit faster. Specifically, regions II, III, VII were supposed to be completed in 2001, and the Santiago Metropolitan region by 2004. "Aprueban el Nuevo Cronograma de la Reforma Procesal Penal," El Mercurio 15 Aug. 2001: C9.

[5] "Aprueban el Nuevo Cronograma de la Reforma Procesal Penal," El Mercurio 15 Aug. 2001: C9.

[6] Guaranteeing rights means that the judge must ensure that the defendant understands all his legal rights and how the process operates. In this way, the judge makes decisions directly concerning the defendants' rights such as designating a public defender, and making decisions regarding detention and conditions of his release. CPP Arts. 102, 127, 154, 132.2, 131, 132, 136, 140, 154, 144, 152, 153, 150.3, 4, 151, 155, 157. The judges in the *juzgado de garantía* also guarantee the defendants' rights by overseeing the Public Prosecutor's investigation on issues relating to evidence and the rights of defendants, victims, and witnesses. Ley No. 19665, Art. 11. Ley No. 19708, Art. 1.

[7] CPP Art. 266, 270, 276.

[8] Ley No. 19.665, Art. 11. Ley No. 19708.

[9] During the oral trial, one judge of three serves as president of the court and ensures that the defendant understands his rights and the process. At this stage of the trial, the prosecutor or defense attorney presents an opening statement, presents and questions witnesses (direct and cross examination), presents other evidence, and provides a closing argument. The judges may ask the witnesses direct questions after questioned by the prosecutor and defense attorney.

[10] CPP Art. 281, 290, 292 et seq., 235 et seq., 329.5, 331, 335, 336, 337, 339, 345.

[11] Ley No. 19.718.

[12] Ley No. 19.718 Art. 2.

[13] CPP Art.93 inc.2b, 102, 104, 132, 261, 286, and 291(2).

[14] Inquisitorial systems are those in which the judge oversees the investigation, trial, and sentencing phases of the criminal justice process. This process is conducted almost entirely through the submission of written documents and is shrouded in secrecy. Adversarial systems are those in which the public prosecutor oversees investigations and trials, and the procedures are public, transparent, and oral.

[15] For the history of the law and development programs of the 1960s and 1970s in Latin America, Asia and Africa, see generally Messick 1999; Meryyman 1977 and Tshuma 1999.

[16] For example, USAID describes the motivation behind its rule of law programs in Latin America and the Caribbean, including those supporting criminal law reforms, as follows:

A desire to support and strengthen democracy in the region is not the United States' only motivation to work with those countries to help them establish the rule of law, however. Other factors include commercial interests, security matters, and humanitarian concerns. Countries with more effective and equitable justice systems provide more stable and attractive environments for investment, as they provide legal protections for investors. Increased investment invigorates local economies, promotes economic growth, and creates a favorable environment for U.S. investors (USAID 2005).

[17] The optimal research design for this project would have allowed for separate time series analyses for each region to determine how the criminal law reform affects each dependent variable. Unfortunately only seventeen years of data were available for the variables of interest preventing the use of a simple time series analysis for each region. As a result, I have instead constructed a panel study which pools observations for 15 to 16 years (depending on the dependent variable) and 13 regions into one database. Despite some limitations in the panel design method, I have attempted to control for differences in the regions by using fixed effects and panel corrected standard errors.

[18] Prior to running the regressions, serial autocorrelation was tested using the method proposed by Drucker (2003) and Wooldridge (2002). Where serial correlation existed, it was corrected in the regression in the manner suggested by Drucker and Wooldridge using a common auto-regressive one process. Further, panel corrected standard errors were used for all of the regressions.

[19] Prior to running any of the incarceration related regressions, tests for autocorrelation, using the methods suggested by Drukker (2003) and Wooldridge (2002), revealed autocorrelation for each dependent variable tested using both the reform and reform counter. The p-values for all the autocorrelation tests for these incarceration variables were 0.000. As a result, the regressions were run modeling time as an AR-1 process.

[20] The final group of individuals analyzed using the Clemente-Montañés-Reyes analysis were *condenados* who are individuals in the incarcerated population under judicial sentence after a conviction. While the IO analysis, only revealed two regions (regions 4 and 7) with structural breaks within two years of the reform, the AO analysis showed seven regions (regions 2, 5, 6, 7, 8, 10, and 12) with breaks within two years of the reform (See OA Table 3).

[21] Prior to applying the fixed effects analysis using the log of regional FDI as a dependent variable, tests for autocorrelation were conducted. They revealed no autocorrelation and thus the regressions were run simply with panel specific standard errors, but no adjustment for autocorrelation.