

A New Dataset of Labor Market Rigidity and Reform Indexes for up to 145 Countries Since 1960 in Some Cases (LAMRIG)*

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ABSTRACT

This paper studies the dynamics of labor market reform across a fairly large number of both developing and developed countries. Our point of departure is Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer *QJE* 2004 which constructed an Employment Law Restriction Index for a cross-section of 85 countries in 1997. Quite a few studies have attempted to up-date similar indexes for large samples of countries (e.g., World Bank's *Doing Business* project, the EU's LABREF). For going backwards in time, however, studies have been limited to two regions (OECD as in Blanchard and Wolfers 2000 and Allard 2005) and Latin America (Heckman and Pages 2004)). The index we develop is for Employment Law Rigidity (ELR), a (de jure) index. The resulting dataset LAMRIG covers up to 145 countries in 5-year averages from 1950-54 to 2000-04 in some cases and reveals sizable variations across regions and over time. In order to assess the usefulness of this new index we conduct several exercises. First, we restrict our analysis to the cross-section for 1995-1999 (the period coinciding with that in Botero et al. 2004) and repeat their analysis concerning the determinants of labor market regulatory rigidities. For this cross-section, we fully replicate their results, demonstrating the greater importance of legal origins than those of per capita GDP and/or political factors. Second, however, when we extend the analysis to the panel and to changes over time, our results diverge from those of Botero et al. (2004). For example, when we use a random-effects model with clustered standard-errors at the country level to explain labor market reform, the influence of legal origins is much less significant, but still present. Third, we test for the relevance of other determinants of labor market reforms, such as economic and political crises, structural factors and other structural reforms. Along with the reduced role of legal origins, we find evidence suggesting that inertia, per capita GDP and other types of reforms all matter.

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I. Introduction

In recent years, an enormous literature has arisen concerning the construction of various alternative indicators of labor market characteristics, most often concerning rigidity or flexibility. These indexes have been based on various different kinds of measures: (1) measures of actual activity, such as the extent of labor turnover, the number of strikes, labor force participation rates, unemployment rates, (2) subjective opinion surveys of employers, workers or other parties concerning job satisfaction, the rigidity of labor markets, the competitiveness of labor markets, and discrimination in labor markets, and (3) codified characterizations of what the labor laws and other labor market regulations say with respect to different kinds of constraints on employers, workers or intermediaries in the market. Each approach has advantages and disadvantages.

The present paper attempts to extend the third approach in several respects, namely, by adding countries and more importantly extending it backwards in time from the late 1990s for some countries to the early 1950s. Specifically, it does do for a single relatively comprehensive measure of labor market rigidity based on comparisons of labor laws across countries and over time. This index is an Employment Laws Rigidity index (ELR) intentionally designed to be consistent with the seminal study of Botero et al (2004) for 85 countries in 1997. Our extension increases the number of countries to 145 for at least one time period and to approximately 100 countries for our panel data analysis. The resulting dataset is referred to as the Labor Market Rigidities (LAMRIG) dataset.

The largest part of the paper is Section II which describes how these indexes are constructed, which varies somewhat by region and country but always in a way consistent with the Botero et al study. In Section III we make use of LAMRIG to describe the changes over time in the ELR indexes for specific regions and countries. We use four cases of country-level ELR changes over

time to illustrate both how the changes in the ELR indexes have been calculated and to identify possible political economy determinants of these changes.

Section IV is devoted to several exercises aimed at assessing the applicability of the index. First, we attempt to replicate the results from Botero et al (2004) concerning the effects of differences in legal traditions (socialist, common law and various variants of civil law) and political and economic variables on the levels of ELR. This is done not only with cross-sectional data for 1997 (the year analyzed by Botero et al) but also with the full panel data. We also make use of various estimation techniques.

Second, we do the same for the changes in the ELR indexes. Defining reforms as negative changes in the ELRs, we are thus able to examine the determinants of labor market reforms. Third, to the aforementioned models of ELRs and reforms in ELRs that included the legal tradition measures, income and political variables, we add some measures of factors suggested by our country case studies. These include measures of economic structure, such as the share of agriculture in GDP, the share of natural resource exports in GDP and income inequality, various measures of other types of economic reform and market development, and finally both economic and political crises.

The paper is concluded with Section V which contains our conclusions and suggestions for future research. A detailed appendix of data sources and further details on the construction of the ELR indexes contained in LAMREG is available upon request as well as on-line.

II. Constructing the ELR Indexes Across Countries and over Time

The purpose of this section is to describe the methods used in constructing the Labor Market Rigidities (LAMRIG) dataset. To that end it identifies the data sources for constructing an index of rigidities “Employment Law Restriction (ELR) Index” that is consistent across countries and

over time. We begin with a brief overview and then go on to provide more detail for the OECD and Latin American regions which take advantage of existing studies. This is followed by a less precise but illustrative discussion of how the ELR indexes are constructed for countries outside these regions.

A. Overview

To study labor market reforms, either determinants or effects, one needs time series data on some kind of a labor market index that one thinks is relevant to the issues in which one is interested, such as unemployment (duration or level), labor turnover, dualism, growth, structural change). Yet, because there is no single data set of any kind that covers the more than 100 countries studied here on a consistent basis for anything more than a few years¹, the present study makes use of data from several different major sources and many other country-specific special sources for countries and years not covered by the major sources.

To our knowledge, there are only a very few data sets relevant to unemployment, the size of the informal sector and related phenomena that have reasonable cross-country and over time coverage going back from the present to the late 1980s or beyond. Aside from the Forteza and Rama index if ILO Conventions, almost all of these, e.g., Blanchard and Wolfers (2001), OECD (2004), Allard (2005a) do so only for developed countries. Indeed, these studies built upon a

¹ The closest labor index to what one might want in this respect is the one by Forteza and Rama (2006) and Rama and Artecona (2002) based on ILO conventions signed by each country. This has good coverage (more than one hundred countries and over time. But, since this index bases much on country's having approved of various ILO conventions on such social issues as non-discrimination in employment that are often not adhered to in practice, few seem to have been persuaded that this is a useful index for examining unemployment and other issues. It also has the disadvantage of having almost no variation over time once these conventions had been signed by the individual country (which in many cases was quite early). Beginning in 2001 another source for measuring the degree of regulation of labor markets arose, namely, Canada's Fraser Institute. Since 1975, this institute had been scoring countries on a number of sub-indicators of economic freedom, such as strength of property rights, freedom from price and wage controls, restrictions on trade, financial transactions and product markets. These were then aggregated into an overall index of Economic Freedom. But in 2001 the Institute began to include scores on six additional subcomponents all relevant to measuring the freedom of labor markets. At the same time these components began to be integrated into the overall Index of Economic Freedom. They did this at first for 58 countries, though the country coverage has grown somewhat over time since then.

whole series of earlier attempts (e.g., Lazear 1990, Grubb and Wells 1993, Addison and Gosso 1996, Nickell 1997, Layard and Nickell 1998 and OECD 1999) to construct such an index for developed countries. The Blanchard and Wolfers (2001) study constructs a series “NEWEP” for 26 OECD countries going back from the 1995-99 period (more exactly about 1996) to the 1960s in five year intervals.² We have used that one in the past but since it has been criticized for lack of consistency over time, wherever possible we have now switched to the estimates of Employment Protection Legislation (EPL) of Allard (2005a) for the 21 countries she has studied. Allard’s series have several advantages relative to those of Blanchard and Wolfers: (1), that they are more consistent over time, (2) that they are annual, and (3) that they go back in time an extra decade (to 1950). They are in principle comparable to those of OECD (2004) but exclude two minor subcomponents, namely, delay to start a notice, and compensation for unfair dismissal, for which information could rarely be found in the legislation. For the remaining five OECD countries not covered by Allard but covered by Blanchard and Wolfers, namely, Iceland, Korea, Luxemburg, Mexico and Turkey, we have used Blanchard and Wolfers (2001).

The other multi-country source with some time coverage as well is Heckman and Pages (2000 and 2004) which cover most countries of the Latin America and Caribbean (LAC) region, going back from the late 1990s only to the late 1980s. For the most part, the LAC indexes are available primarily only at intervals a decade apart, not annually. For this reason, it was realized that the best we could do in putting together a comprehensive set of employment law indexes for periods prior to the late 1980s for LAC countries was to make use of use of Heckman and Pages

² Nickell et al (2003) have annualized the Blanchard and Wolfers series. More recently, the European Union (EU) has constructed a somewhat similar set of indexes called the Labor Market Reform Database (LABREF) with somewhat more detail on certain policy-related aspects of labor legislation, but only for each year between 2000 and 2006 for each EU member. These labor market reform indexes include pension, labor taxation and other aspects. Both Arpaia et al (2007) and Bassanini and Venn (2007) describe the indexes and relate them to different effects on labor. Arpaia (2007) focuses on the effects of the indexes on labor market participation (of all workers but especially of older ones) while Bassanini and Venn (2007) examine the effects of the indexes on labor productivity.

but to extend the series both forward in time and back as far as possible with use of information on the labor laws and other studies where available.

As has been noted in many surveys, e.g., Bertola (2008), Freeman (2008), Djankov and Ramalho (2008), the data on countries outside of these two regions is much more limited in time coverage. Indeed, for them we had to use a wide variety of sources but with methods designed to be as consistent as possible with those used for the OECD and LAC regions. We will come to these regions after describing how the OECD and LAC regions are dealt with in greater detail.

Even for the OECD and LAC data sets, their comparability is made more difficult by the fact that, although similar in spirit, the Heckman and Pages (2000 and 2004) Job Security Index and Allard (EPL) are built up from sources, methods and index aggregation procedures that are by no means identical.

The Heckman and Pages Job Security Index (JS) is defined as the discounted value of dismissing a worker at an expected date in the future based on the likelihood and costs of dismissal implied by the labor laws and regulations (but excluding the costs of court actions). It makes use of a common discount rate of 8 percent, an assumed turnover rate of 12 percent and the country and period-specific cost (inclusive of those related to seniority) of dismissing a worker for either justified or unjustified reasons.

As indicated above, Allard (2005a) made use of 16 of the original 18 aspects of EPL used in OECD (2004) but obtained the data, not from questionnaires cross-checked with the individual countries as in the OECD study, but rather from direct examination of the laws themselves based on ILO's NATLEX supplemented with OECD sources. The 16 indicators were aggregated first into three separate indicators (laws protecting workers with regular contracts, those affecting workers with fixed term (temporary) and regulations applying to dismissals), and then into a single EPL index. Both the scoring of the sub-components and their weighting into

the various components and indexes have been controversial since virtually any method is subjective.³ While the scales of the indexes (the EPL of Allard and NEWEP of Blanchard) are almost identical ranging from 0-4, that of EP of Heckman and Pages) is quite different, the latter ranging from 0-18. None of these indexes which we rely on reflects by any means all of the labor market institutions (such as wage flexibility, team production, job rotation, social dialogue, pension plans of different types, and workers use of the courts) that one might think would exercise influence on economic outcomes of various sorts (Freeman 2008).⁴ Yet, as indicated both above and further below, each of them captures a number of important (largely common) dimensions of labor regulations and thus may be regarded as a measure of the restrictiveness of labor laws and regulations. Since both also allow internally consistent comparisons over time, we deem it valuable to make use of them together.

Fortunately, there is another source, namely Djankov et al (2003) revised as Botero et al (2004), that uses a closely related methodology for constructing an employment laws restrictiveness index (ELR). Their ELR has much greater country coverage (originally 85 countries) but only for a single time period 1997. This index is constructed as the total of the scores on three different subcomponents, alternative employment contracts (part-time, fixed term etc.), conditions of employment (mandatory rest, maximum hours of work without overtime, overtime pay premium, leaves for holidays and maternity, etc.) and job security (restrictions on dismissal, mandatory notice periods, severance payments). In this respect the ELRs of Botero et al are somewhat broader in scope than the other studies. Because it has scored each of 85

³ Indeed, as shown by Addison and Teixeira (2003), the various variants of the aggregate indices that have arisen are not always highly correlated and their application to issues like unemployment rates has sometimes resulted in opposite findings. These and other authors also point out that what is relevant in constructing these indices also varies from industry to industry, thereby calling into question the usefulness of aggregate indices.

⁴ Allard (2005b) creates for the same 21 OECD countries in her 2005a EPL indexes of unemployment benefits based in part on tax treatment and subsidies with duration and the conditions for qualification.

countries, including almost all of the 21 countries for which we have used Allard's ELR,⁵ the 5 other countries for which we have used NEWEP from Blanchard and Wolfers and the 21 LAC countries⁶ covered by Heckman and Pages (2000, 2004) for the year 1997, we use the ELR of Botero et al (2004) in order to provide consistency between the indexes coming from each of the other sources in the LAMRIG database.⁷ A major advantage of this index is that it comes with a complete matrix of how the authors scored each country on each of the 31 subindicators so as to facilitate matching with information concerning changes in the laws over time from NATLEX and other sources. The fact that the studies with over time coverage on JS and EP do not include indicator for the working conditions component of the Botero et al ELR indexes is not crucial since these typically change less frequently over time than other components of the labor laws.

Each of the three subcomponent scores in ELR is in turn an average of scores on a 0-1 scale on the list of indicators, many of which are “yes” –“no” answers as to whether a certain regulation exists or not. Hence, the maximum score is 3 and the minimum 0. Moreover, the 85 country sample of Botero et al (2004) has subsequently been extended in the closely related Rigidity of Employment (ROE) Indexes developed in the World Bank's *Doing Business Surveys* so that, for subsequent years 2003 and 2007 at least, an additional forty or more countries can potentially be added to the sample. The ROE indexes are, like the Botero et al (2004) ELR

⁵ These countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States.

⁶ The LAC countries covered by Heckman and Pages include: Argentina, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guyana, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Venezuela. They also included Mexico but for this country we have used Blanchard and Wolfers because of its more complete time coverage.

⁷ Another reason for choosing the broader ELR index of Botero et al (2004) as the lynch-pin for our construction of LAMRIG is that these authors have shown it to have important consequences for labor market outcomes, perhaps stronger ones than have been obtained by other authors. For example, in their recent recapitulation of their results and attempt to rebut the criticisms raised of their study, La Porta et al (2008) have shown that a two standard deviation increase in ELR implies a 1.99 percentage point reduction in the male labor force participation rate, a 2.32 percentage point increase in the unemployment rate, and a 5.67 percentage point increase in the unemployment rate of young males.

indexes, based on three subcomponents, namely, difficulty of hiring, rigidity of hours, and difficulty of firing. Each of these depends on most of the same indicators as in Botero et al (2004). In this case, however, each of the subcomponents scores is on a 0-100 scale and since the aggregate ROE index is an average of these, it, too, is on a 0-100 scale. Hence, while methodologically and substantively the two indexes are almost identical, their scales are very different: (0-100) for ROE instead of 0 – 3 for ELR. As described in greater detail below, the difference in scale was overcome by establishing an average conversion factor between each of these *Doing Business* publications and numbers from the Botero study. The Allard (1995a) EPL scores use a 0-4 scale and hence also have to be converted to Botero's 0-3 scale and calibrated so as to be consistent with the Botero figures for 1995-9.

Both the country-specific Heckman and Pages Job Security Indexes and the Blanchard-Wolfers NEWEP indexes are then converted into indexes with bases 1995-9 = 1.0. The over-time variations in these indexes are then applied to the country-specific 1995-9 values in the Botero et al (2004) to construct over time variations in the country-specific ELR indexes for the countries included in the OECD and LAC samples. Since they were roughly on the same scale, the Allard indices were left as they were but aggregated from annual scores to their five-year averages. A similar procedure is applied to the more fragmentary evidence of over-time changes in the relevant components of labor laws for the remaining countries in the samples afforded by the Botero et al (2004) and subsequent *Doing Business* Surveys. Below we describe how these indices were also updated to 2000-4.

While others may wish to keep the various sub-indexes separate for use in different kinds of application, for the present purposes we wanted to keep the focus on a single broad indicator of the restrictiveness of employment laws. To avoid getting bogged down in the various possible weighting systems, moreover, we simply accept the equal weighting of the three sub-components

as suggested by Botero et al. (2004).

The end result is an incomplete panel of Employment Laws Restrictiveness (ELR) indicators for well over 100 countries measured as 5-year averages ranging from 1950-54 through 2000-04, the dataset we call LAMRIG for Labor Market Rigidities. For some years there are as many as 145 countries with ELR scores. As has been pointed out by quite a few analysts (e.g., Eichhorst et al 2007, Freeman 2005, 2008), whether higher scores are looked as better or worse is subjective. For example, employers associations and individual employers typically view them as harmful to investment, employment, productivity and the long run interests of workers. But, those supporting labor interests and those interested in “public welfare” and human rights often see them as good, helping to increase the legitimacy of working outside the home for individual workers and thereby creating larger and better organized labor markets. Others (Boeri et al (2000), Nicoletti et al (2000) and Amable et al. (2007)) view the “goodness” or “badness” of such indexes to be more complex, depending on the identity and magnitude of other market imperfections, regulations and so on. We are agnostic on this, but given considerable evidence suggesting that higher scores are associated with higher informality or unemployment rates and lower labor force participation rates, we do use the term “reform” to refer to a reduction in these indexes and “reform reversal” to refer to an increase in these indexes.

B. More Detail on Constructing the Indexes for the OECD and LAC Regions

As indicated above, for the 21 OECD countries covered by Allard (2005a), her series were used to construct an index from 1950-4 through 2000-4 and then converted to a 0-3 scale so as to coincide with those of Botero et al (2004) for the period 1995-9. For three of the OECD countries covered by Blanchard and Wolfers but not by Allard (Korea, Mexico and Turkey), the Botero numbers were extrapolated backwards to 1960-4 based on an index with 1995-9 = 1

constructed from Blanchard and Wolfers NEWEP.

Two countries covered by Blanchard and Wolfers but not Allard, Luxemburg and Iceland, were not covered in Botero et al (2004). They were, however, covered in the World Bank's Doing Business 2008 (pertaining to 2007) as "Rigidity of Employment Index"⁸. This index was scaled differently but based on similar methodology to the Employment Laws Index of Botero et al (2004) as explained in *Doing Business*. The values from the *Doing Business* scale for these two countries were then extrapolated backwards to 1995-9 on the basis of information in NATLEX or LEXIDIN website and other sources and converted to those of Botero et al (2004) scale on the basis of the conversion factor found for neighboring countries. The resulting values were then interpolated back from 1995-9 on the basis of the Blanchard and Wolfers (2000) data base for NEWEP.

As indicated above, for Latin American and Caribbean (LAC) countries for which 1995-9 values of ELR were available from Botero et al (2004) (other than Mexico which was covered in Blanchard and Wolfers (2000)), the interpolation backwards was based on the Job Security Index of Heckman and Pages (2000) and certain refinements thereof for the dates of reforms contained in Heckman and Pages (2004).⁹ Specifically, the Heckman and Pages numbers were calculated as the total costs of firing a worker relative to wages in 1987 and in 1999. We calculated the ratio between the 1987 number and the 1999 number for each nation in the Heckman and Pages study, and using the 1999 Botero study index number we extrapolated an index number for the 1985-1989 time periods for each nation. For the 1990-4 value we made use

⁸ This index combines sub-indexes for (1) alternative employment contracts, (2) conditions of employment, and (3) job security. See also World Bank (2004).

⁹ This index was computed as the expected discounted cost at the time a worker is hired of dismissing the worker at some time in the future based on existing labor law (but excluding the costs of court actions). It makes use of a common discount rate of 8 percent and assumed turnover rate of 12 percent⁹ and the costs (inclusive of those related to seniority) of dismissing a worker (for justified and unjustified reasons).

of NATLEX and other studies to identify changes and if these occurred to approximate the magnitude based on the relative importance of the items changed based on NATLEX or LEXIDIN. Similarly, NATLEX was also used to extrapolate the ELR indexes backward in time in a way consistent with the Botero (2004) matrix of the scores assigned to each of the 31 components of ELR.

For Chile, even though over time values were included in the Heckman and Pages (2000) study, because of its greater detail and longer time coverage, the index was interpolated back to 1960 based on the Job Security Index data presented by Montenegro and Pages 2004 (Figure 7.1). For those LAC countries (Costa Rica, El Salvador, Guatemala, Haiti, Honduras, Nicaragua and Paraguay) for which there was no observation for the Employment Laws Index in Botero et al (2004), but there did exist a score on the closely related Rigidity of Employment Index for either 2003 or 2007 from the World Bank *Doing Business* volumes for 2004 and 2008, a similar procedure was used as that described above for Iceland and Luxemburg interpolated backwards to 1995-99. Wherever possible, these indexes for Latin America and Caribbean were interpolated backwards from there to the late 1980s based on Heckman and Pages (2004) and to earlier years based on the various provisions in the earlier employment laws from NATLEX and LEXIDIN. In cases where there was no new Employment Law between dates covered, such as in Haiti between 1984 and 1995-99, the resulting index values were assumed to remain constant between those dates. For LAC countries not included in Heckman and Pages for which Djankov et al (2003) or Botero et al (2004) was available or could be constructed based on conversions from the subsequent *Doing Business* surveys, namely, Guatemala and Haiti, the values were interpolated backwards solely based on the provisions of the employment laws as reported in NATLEX and LEXIDIN. (Other LAC countries, Belize and Suriname had to be dropped from the present study for lack of complementary data.)

Once again, the 1995-9 values for these countries are those identical to, or made to be consistent with what the Botero et al (2004) ELR values would have been expected to be based on the aforementioned conversions from the subsequent *Doing Business* values and employment law changes indicated by NATLEX or other sources.

C. Constructing the Indexes for Countries in Other Regions

As indicated above, for countries outside of the OECD and LAC regions, data on employment rigidities are much less complete and rarely if ever already developed into an index over time. Some early studies identifying the effects of employment laws were Fallon and Lucas (1991, 1993). They identified law changes in both India and Zimbabwe had the effect of tightening labor regulations and claimed that in both cases the result was lower formal sector employment of industrial labor.

Once again, our first step is to make use of the Botero et al (2004) and subsequent *Doing Business* surveys for 2004 and 2008, for arriving at values of the index for 1995-99. In these cases, we went country by country, making use of published papers covering the country in order to interpolate the indexes backward in time to the extent possible.

For example, Gerardo Sicat's article "Reforming the Philippine Labor Market" provided us with ample data of Philippine labor regulations. This source discusses changes in labor law/regulation and the actual impact they have on labor regulation (and the ease of employing workers) – whether they make regulation stricter or looser. Starting with our 1999 Botero number, we assessed the impact of previous changes in labor regulation and worked our way backward.

For India we made use of Dutt (2002), Dutta Roy (2004), Besley and Burgess (2004) and Pages and Ahsan (2008) and other materials identified in Section IIIB below. The latter two of the studies identified above make use of state-specific changes to the federal-level Industrial

Disputes Act of 1947. This is relevant because in India's federal system states are also granted the power to regulate industry, labor, health and other matters. A problem with the state level data is that some states were liberalizing while others were tightening regulations making it difficult to aggregate into all-India changes. As noted below, we did so very crudely based on the number of states moving in either direction, the magnitudes of these changes and the sizes of the respective states. Note also that Bhattachajea (2006) has criticized Besley and Burgess (2004) and Pages and Ahsan(2008) though more for their analysis of the effects than for the scoring of the amendments. It should also be admitted that most of these indexes for India pertain exclusively to manufacturing (and even within manufacturing there may be differences).

For the remainder of our countries (primarily Africa and the Middle East), the International Labor Office's *NATLEX* database provided us with the majority of our data. Similar to our process for the Philippines, we gauged the effect of previous changes in labor regulation and adjusted Botero ELRs across different time periods accordingly. In each such case, we gain made considerable use of the appendix materials for Botero (2004) containing the scores assigned to the countries included in that study for all 31 subindicators. For the few nations that we did not have a 1995-1999 Botero ELR for, we used the rankings based on ease of hiring and firing workers in *Doing Business 2004, 2007 and 2008*. *Doing Business 2007* ranks nations in order of ease of hiring/firing workers, so we compared nations with unknown Botero numbers to other nations close to them on the *Doing Business's* rankings. For the most part, our findings based on *Doing Business 2007* were consistent with the Botero Index numbers we already had, so we extrapolated Botero ELRs for these countries with missing ELR scores in Botero et al (2004) based on nations near to them on *Doing Business's* rankings. There were, however, some instances where we found inconsistencies between Botero et al (2004) and *Doing Business* evaluations that could not be attributed to labor law changes and therefore did not use

this method of conversion.

For Iran, which was not included in Botero et al (2004) but was included in subsequent editions of *Doing Business*, we have made use of the relevant components of the index of Labor Market Flexibility by GholamReza Haddad which covers the entire period 1960-2006 that also includes minimum wages and other unemployment insurance requirements.

Some illustrative examples of how these over time changes in the ELR indexes were constructed are provided in the next section.

III. Some General Patterns and Illustrative Country Examples

As has been widely observed, labor market regulations tend to be much more static over time than other types of regulations. This may well be attributable to the numbers of parties that would have to be involved in making changes to labor regulations (firms of different ownership types, sizes, sectors, workers of different types, managers of different backgrounds, competitive conditions that may vary by sector, government bureaucrats from different ministries, labor unions of different types and sizes, employers organizations, intermediaries between business and labor, and the judiciary).

Despite the fact that there are quite a few countries that have experienced little or no change in their ELR scores over the entire period, in each region, there are also countries whose scores have changed from one 5 year period to another, resulting in some interesting differences across regional or other groupings. Section A examines some of these patterns of change in regional or other groupings. Section B identifies some changes over time in some individual countries that are in neither the OECD nor the LAC regions and thus with over time changes in labor regulations not covered in the major existing sources identified in the previous section.

A. Some Regional Patterns

On average, the change in the average of all country ELR scores in the LAMRIG data base over the period 1960-4 to 1995-9 have been modest. There were some notable changes in the 1950s and especially in the last ten years. At the regional level, however, there has been more volatility, but again primarily in the 1950s and 1960s and again after 1995. This is reflected in Figures 1 and 2. An important caveat to interpretation of both Figures 1 and 2 is that, except for the high income high-middle countries of Europe, the early year portions of these curves are based on very few and not necessarily representative countries.

Figure 1 presents the average ELR scores over the same period of time for six regional groupings, namely, Latin America including the Caribbean(LAC), Asia, “Europe” (defined to include, Canada, the US, Australia and New Zealand), Sub Sahara Africa (SSA), Transition Countries of Central and Eastern Europe and Central Asia and the Middle East and North Africa (MENA). In this case, there are two regions, Asia and MENA, with very little change in the average ELR scores over time. Asia exhibited very little change over the whole period, remaining below 1.5 for the entire period before 2000-4 at which time the average ELR has edged upwards. While MENA’s index revealed little change except for the noticeable increase in the 1950s. It’s ELR also remained near but slightly below 1.5 for the entire period. In contrast, SSA’s average ELR has risen rather steadily from below 1 in 1950-4 well over 1.5 in 2000-4. The ELR average for “Europe” rose even more steeply from less than 0.5 in 1950-4 to well over 1.5 in the early 1990s before dropping off very slightly since then. By contrast, LAC’s ELR started well above 1.5, rose further in the 1960s but has declined to only about 1.2 by 2000-4. The ELR for Transition region started at about about 2.3 in 1960-4 but has fallen to a little below 2 since 1965-9.

Figure 2 presents the average ELR scores in LAMRIG over time for four different levels of per capita income, low, lower middle, upper middle and high. Reminiscent of the pattern for the

“Europe” region in Figure 1, the ELR average for high income countries started from an extremely low level of just over 0.4 in 1950-4, rose rather steadily to well over 1.6 by 1985-9 before leveling off to about 1.6 in 2000-4. The low income and lower-middle income countries started the 1950s with quite a bit higher ELR indexes but experienced quite sharp increases in their respective ELRs in the 1950s, leveled off in the 1970s and 1980s before rising further in the last decade. The ELR of the lower-middle income countries in 2000-4 was 1.8 the highest of off the groups. By contrast, the ELR of the upper-middle income countries displayed a rather inverted U pattern, starting with the highest level of any region in 1950-4, rising further to 1.6 by the mid-1960s but the falling gradually to about 1.4 by 2000-4.

B. Some Illustrative Country Cases

Given (1) the varying sample sizes of the region averages reported in Figures 1 and 2, (2) the earlier observation that many countries experienced little or no change in ELR scores over time and (3) the possibility that the ELR scores of different countries within any one of these regional or income groupings may move in different directions resulting in little change in group average scores, in this section we turn to some individual country experiences.

In their exposition of their indicators of the restrictiveness of labor laws, Botero et al (2004) illustrated the indexes and the relevance of differences in legal tradition by comparing New Zealand and Portugal, two countries at fairly similar income levels(at least in the late 1990s) but different legal traditions and ELR scores in 1997. In particular, Portugal was an example of a country with French Civil Law background and a high ELR Index of 2.36 (3.7 on Allard’s EPL index) while New Zealand was an English Common Law country with a low ELR index of 1.06 (0.7 on Allard’s EPL index). They illustrated the sizeable differences between these countries with reference to the various subcomponents of their index, making the sizable difference between their respective overall index scores understandable. As shown in Table

III.1, in our LAMRIG data base, New Zealand has had a low ELR score of 0.48 (based on our conversion of Allard's EPL to the 0-3 Botero scale) for the entire time between 1975-9 and 1995-9 before rising slightly to 0.50 in 2000-4. In the 1960's, however, it's ELR score was lower still at 0.14. Portugal, by contrast, had its high ELR score of about 2.4 ever since 1985-89. Notably, however, in the early 1950s and even in the 1960-4 period, Portugal's score of 0.066 was slightly lower than that of New Zealand's at that time. Clearly, if the 1950s or 1960-4 scores had been used, this comparison would not have served the purpose of showing that the French civil law tradition gives rise to greater restrictiveness in labor legislation than does the common law tradition. Moreover, with such sizeable changes in relative rankings over time, it is unclear why the legal tradition should matter much since the legal tradition almost never changes over time. As indicated above, the changes over time in OECD and Latin American countries have already been rather extensively documented by the several already cited studies done on these regions.

Therefore, to illustrate some other interesting differences in ELR scores over time, also in Table III.1 we show the ELR index values for seven countries from outside of these regions, two giants from Asia: India and China, another large country from Asia; Philippines, a medium sized country from SSA: Ethiopia, and three small countries Botswana and Zambia from SSA and Jordan from MENA. Clearly, China's ELR started high, the highest of all the countries in the table in 1960-4 but it gradually declined beginning in the mid 1980s to 1.41 in 2000-4. By contrast, Ethiopia, India and especially Philippines have seen their ELR averages rise over time so as to have the next highest scores behind only Portugal by 2000-4. The ELR scores for the other three countries have displayed more interesting patterns. Jordan's was steady at a relatively high value of 2.7, before falling substantially in 1995-9 and then rising again slightly in 2000-4. Botswana's ELR index started very low at 0.9 in 1970-4, rose gradually to 1.3 in the 1990s

before falling to 1.05, the lowest of all countries except New Zealand in 2000-4. Zambia's has fluctuated a bit more but remained fairly low over the whole period.

To obtain some insight into the changes in some of these countries and again the role of legal tradition, in the following subsections we will provide short political economy accounts of four of these countries, two (India and Zambia) classified as English Common Law countries, Jordan classified as French Civil Law and China classified as having a Socialist legal tradition. In the Botero et al (2004) indexes for 1997 and hence the 1995-9 period in LAMRIG, these four countries all had scores in between those rather extreme scores for New Zealand and Portugal.

India

The main legislation concerning labor regulations in India dates back to two important laws at more or less the time of the country's independence, the Industrial Employment Act of 1946 and the Industrial Disputes Act of 1947. A third important act is the Trade Union Act which dates all the way back to 1926. The stipulations of this latter act have changed little over time and been quite accommodating to unions and union activity. While the Industrial Employment Act allowed for layoffs on grounds of financial necessity, as well as for medical or disciplinary reasons, when financial reasons are given as the justification, the Industrial Disputes Act comes into play. While the latter act was amended on various early occasions (1964, 1965 and 1971), the most important amendments were those of 1976, 1982, and 1984.

The 1976 amendment made prior approval by the government of any such layoffs mandatory. While at that time this provision applied only to firms with 300 or more workers, in 1982 the provision was changed to apply to all firms with 100 or more workers. Employers who violated these regulations could be fined heavily and forced to reinstate the dismissed workers. These changes are reflected in the increase ELR index for India in Table III.1 from 1.1 to 1.15 in 1975-9 and 1.2 in 1980-4. Under India's federal constitution, its states also have the power to

impose regulations of these types. Indeed, several studies, Besley and Burgess (2004) and Ahsan and Pages(2008) have made extensive use of state level amendments to these laws.¹⁰ While in each period there were some states that amended their laws in ways that were more restrictive and others that amended in a less restrictive direction, during the late 1980s the number of states classified as increasing restrictions outnumbered and were generally more important states than those liberalizing the laws. This accounts for the final increase in the index from 1.2 to 1.3 in 1985-9. After this, despite liberalization of various other regulations, the labor laws of India were not appreciably modified as noted by Saha (2007). But, on the other hand, the 2004 *Doing Business* reported a considerably higher score which converts to 1.53 on LAMRIG.

Saha (2007) also cites an estimate that only 10 percent of the requests to government for layoffs on financial conditions were approved. Hence, the inability to lay off workers could be regarded as very restrictive. The reason why, even at the end of the period, India's scores on this index are not higher is that in terms of the restrictiveness of work hours, overtime and overtime pay, and to a lesser extent alternative types of contracts, India has low restrictiveness scores.

China

In the early periods covered in the LAMRIG dataset, China had a highly regulated labor market for urban and industrial activities, with wage rates, wage structures rigidly regulated and industrial employers, then largely state enterprises, unable to lay off workers. Workers also had to be given housing and other benefits. In 1986 and especially in 1988 with the People's Industrial Enterprise Act and the Regulation of Private Enterprise Act, both of 1988, labor regulations were lightened. Employers wanting to terminate workers for financial reasons were from that time only forced to consult with authorities and labor unions over the layoffs but were not required to receive approvals. In 1992 enterprises were allowed to set their wage rates in an

¹⁰ For some criticism of the studies and the conclusions drawn from them see Bhattacharjea (2006).

autonomous way as long as they stayed within certain government -set required bounds. Even SOEs were allowed to be closed down on financial grounds. The 1994 Labor Act allowed for collective contracts, floating wage rules and layoffs for financial, disciplinary or medical reasons. More widespread approval was also given to the use of fixed term contracts and employers were allowed to terminate a worker prior to the completion of the fixed term for financial reasons, subject only to 30 days notice and specified compensation. Firms were increasingly relieved of their requirement to provide housing for their workers. In late 1999 a Contract Law was passed which came into force the following year. Although this law did not deal directly with employment contracts (Cooney et al 2007), it may have indirectly through allowing for labor contracting within service contracts. These same authors indicated that the kinds of contracts in practice seemed to increase rapidly in the 2000-4 period suggesting perhaps why the 2004 *Doing Business* assigned a lower score on the Employment Laws Index during this period equivalent to 1.41 on the Botero et al (2004) ELR. We have adapted that figure even though as Cooney et al indicate, the first new Labor law was the Labor Contract Law of 2007.

These successive changes in the relevant labor laws and regulations of China account for the indicated reductions in the ELR index for China in Table III.1 from 2 for all the periods through 1980-4 to 1.8 in 1985-9 and 1.62 beginning in 1990-4. These changes were no doubt associated with the increasing market-orientation of Chinese leaders and the accumulating evidence that these liberalizing economic reforms were paying off. There was also gradual increase in the relative importance of town and village enterprises and subsequently international joint ventures and private enterprises in which inter-firm and international competition must have helped to generate pressures for liberalizing labor markets. In the process the importance of firm-provided housing and residence based provisions of food and other benefits also diminished, and as noted above a proliferation of new types of employment contracts.

Jordan

Jordan is different from all the other countries discussed in this section in that it is a monarchy. Monarchies, especially those of relative short duration like Jordan's and where the monarch has considerable political power, face the problem of how to maintain legitimacy in the eyes of its citizens without elections for the executive and democracy which could limit their power. The provision of economic security is one important means for endowing itself with a sense of legitimacy on the part of its citizenry. Lacking the funding for a full-fledged social insurance system, for most of its post-WWII history Jordan's monarch-led government has attempted to do this through its government and public enterprises providing rather well-paying jobs to many of its citizens with reasonably generous retirement schemes and job protection. Not surprisingly, over much of this period, most Jordanian public enterprises were known to be over-staffed.

The country's Trade Union Law of 1953 confirmed the right of workers to form unions and the right to strike. This law was amended on several occasions but with only minor import, e.g., in 1956 to prohibit civil service workers from unionizing or striking, and in 1976 to limit the number of labor unions. From the detailed subindexes for Jordan's overall score on the Botero index, Jordan is rated very restrictive in the use and cost of overtime, the hours of work and pay scales being treated quite similarly to those in the state bureaucracy. The Labor Code of 1960 applied with little revision until its replacement by the Labor Law of 1996. It was also rated quite restrictive in terms of the lack of provision for fixed term or other types of labor contracts. We assigned an ELR score of 1.7 to Jordan for all years prior to the 1995-9 period.

The Labor Law of 1996 and Act No. 36 of 1997, however, relaxed restrictions quite significantly. First, it gave more specific recognition to fixed term contracts which would not require compensation on completion of the term of employment specified in the contract.

Second, it allowed for employment on a trial basis not to exceed three months. Third, it recognized still another type of contract, namely, that of indefinite duration which would apply to workers working on piece-rate and other contracts. Employers were permitted to suspend even these contracts for economic or technical reasons as long as the Ministry of Labor was notified (but its approval was not necessary). Workers could even be dismissed from fixed term contracts before completion of the terms as long as notification was provided and specified compensation provided. It was also made clear that the rights to join a labor union and be represented by it did not apply to non-Jordanian workers (Bitar 2004, Shawabkey2006).¹¹ Based on these considerations Jordan's score on ELR index for 1995-9 was reduced to 1.46 from its earlier value of 1.7.

Lying behind the change were three factors: (1) the delayed but growing interest of the Jordanian government in privatization and viewing growth of the private sector as the way to deal with the country's high and rising unemployment rate¹², (2) the prior liberalization of other aspects of Jordan's economy, and (3) the fact that in 1996 negotiations were under way to stimulate Jordanian exports in low wage garment industries by signing the Qualifying Industrial Zones (QIZ) protocol with Israel and the US.

With respect to (2), as noted by Pripstein-Posusney (2004) the delay in privatization was especially notable since the other liberalization measures (with respect to product markets, financial markets and international trade) had commenced in 1991 and 1992, triggered by the severe economic crisis that Jordan suffered as a result of the Gulf War. These reforms and proclamations that privatization would also take place were also supported financially by the

¹¹ Non-Jordanian workers have become an increasingly important component not only of the agricultural and construction labor force but also of manufacturing employment.

¹² Advocacy for increased reliance on the private sector became stronger after King Abdullah succeeded his long-time predecessor King Hussain in 1999.

World Bank and other agencies. The fear of loss of jobs in the process of privatization and the adverse effect that this might have for legitimacy of the monarchy might well have contributed to this. Even when privatization started in earnest after 2000, Pripstein-Posusney (2004) informs us that clauses in the specific privatization agreements specified that the new firms would have to retain workers for at least two years after the sale and that the proceeds would be used to provide retraining and other help to impacted workers.

With respect to (3) the QIZ Protocol, formulated making QIZs in Jordan considered as an extension of Israel which already had a FTA agreement with the US.¹³ Chief among the industries subject to high tariffs and quotas was the garments industry, a low-wage, labor intensive sector. Garments were the main activity to attract investment, most of which was in the form of FDI which came to Jordan to take advantage of these special incentives. Yet clearly to be competitive with countries with much lower wage rates like China, India, Pakistan and Bangladesh, This put pressure on Jordanian officials to keep labor laws such that they would not undermine these activities that soon came to provide a large share of total industrial employment (Nugent and AbdelLatif, 2009).

However, continuing inflation in the country and press calling attention to some abuses of labor among QIZ employers led Jordan's Labor Ministry to impose minimum wage regulations on all labor contracts, thereby causing us to raise the ELR for Jordan to 1.52 for the 2000-4 period.

Zambia

Interestingly enough, the motivation for the changes over time in the ELR index for Zambia bears some resemblance to that of Jordan. Like Jordan, Zambia has been heavily

¹³ As further incentive to Jordan for having signed a Peace Treaty with Israel, Jordanian QIZ industries in which at least 8 percent of the final cost had to come from Israel, were exempted from quotas as well as tariffs.

dependent on the public sector for its formal economic activity. Its government and state enterprises provided the vast majority of formal sector enterprises until the mid 1990s when privatization got under way. In 1991 there were some 282 state enterprises, many of the largest being in the mining, manufacturing and service sectors.

While in terms of the labor force as a whole the vast majority has long been engaged in self employment, microenterprises, subsistence farming and other informal activities, the formal sector contracts, largely in the public sector were of two types, fixed term contracts of 6 months duration with no commitment for renewal at the end of the contract, and permanent contracts, that would terminate primarily only with the death or retirement of the worker. The labor law, the Employment Act of 1965, was very simple and not very restrictive since short term contracts were feasible. Since state enterprises in which the bulk of the formal sector labor force was employed virtually never went into default, the issue of dismissal of permanent or even fixed term workers for financial reasons virtually never arose. On the basis of matching the various provisions of the law to the Botero et al 2004 scoring of the sub-indexes, we assigned Zambia a rather low score of 1.05 for the years up to the 1985-9 period. The Industry and Labour Relations Act allowed for labor unions, one in each industry.

However, in the 1980s the many distortions arising from monopoly labor unions and the country's highly protective trade regime and various other product market imperfections began to take their toll on the economic viability of the country's economy and even state enterprises started to face financial difficulties. In this environment, a new Employment Act was introduced in 1982 with subsequent set of regulations. The revisions of the labor regulations had the effect of slightly tightening the conditions under which workers could be dismissed. On the basis of the tighter job security regulations, the score assigned to Zambia on the ELR index rose to 1.3 beginning in the 1985-9 period. With a new democratically elected government coming to

power after 1990, the government obtained financial support from the International Fund and adopted a package of liberalizing policies, including trade and product market reforms and committed itself to privatization of the state enterprises. The new government looked to the private sector as the preferred route to prosperity. But this meant encouraging private firms to enter and grow in size and private investors to buy up the ailing state enterprises. To that end, the government passed a number of new laws, the Privatization Act of 1992 and later the Employment Act of 1997.

This 1997 labor law explicitly identified a number of additional types of labor contracts, temporary, part-time, fixed term and so on giving private sector employers more options. This explains why the ELM index score assigned to Zambia was lowered to 1.15 in the period 1995-9. Rather remarkably, by 2000 the vast majority of the 282 state enterprises that existed in 1991 were privatized and the government was able to collect sizable amounts of privatization revenues. These revenues were to be used in part for retraining and otherwise assisting redundant workers. Yet, in terms of formal sector employment, the privatization experience was very disappointing. Formal sector employment fell by some 15 percent over the decade of the 1990s. Most of the dismissed workers went into the informal sector or unemployment. The decline in formal employment was quite remarkable given that population was growing at a rate of 3.8 percent per annum over the same period. Several observers (e.g., Petruskis 2005 and Nyirenda and Shikwe 2003) attribute this failure to (1) the law itself which made it easy for the private employers to substitute informal short-term workers for formal ones, (2) the failure of the government to use the privatization proceeds to retrain laid-off workers, and (3) the failure of either government administrators or the courts to enforce the provisions of the employment laws (made difficult by the vagueness of some of its provisions).

Perhaps as a result of the unpopularity of the privatization and the 1997 labor law, by

Statutory Instrument No. 2 of 2002, various labor regulations were tightened slightly, including those for minimum wages, maternity leave, hours of work and other conditions of work. As a result, we roughly calibrated this to justify an increase of 0.1 on the ELR to a level of 1.25 for the period 2000-4.

A Brief Recap of the Cases

Of the four cases treated here, three different legal traditions were represented. Just as in the previous Portugal New Zealand comparison, even if there may have been some notable differences in these scores between legal traditions at one point in time as argued by Botero et al (2004), from the above discussion it is by no means clear that different legal traditions played much of a role in explaining changes in these scores over time.¹⁴ Indeed, since the legal traditions didn't change over time, it would seem doubtful that they could contribute to the explanation of changes in the ELR scores over time. From the above discussion of the four cases, we believe that a case could be made for economic crises, political crises (or changes) and perhaps certain changes in economic structure. We will therefore pay some attention to these factors in the empirical work below attempting to explain changes in the ELR indexes across countries and over time in the LAMRIG dataset.

IV. Methodology and data

In this section we discuss the methodology we choose to assess the appropriateness of our LAMRIG index and present the auxiliary data required for this task.

In terms of the econometric methodology, we first try to replicate the results in Botero et al. (2004). At the outset, the most clear-cut difference is that while their sample has 85 countries, ours contains 142 countries for the same period (1995-9). Our first task is to determine whether

¹⁴ Perhaps a case could be made for Socialist law contributing to the high score for China in the early periods.

or not we can replicate their results in a cross-sectional setting with this extended sample. Accordingly, from their Table IV, the first model we estimate takes the form:

$$LAMRIG_i = \alpha_i + \beta_1 GDP_i + \beta_2 LO_i + \varepsilon_i \quad (1)$$

where $LAMRIG_i$ is our index of Labor Market Rigidity for country i , GDP_i is the log of per capita GDP, and LO_i is a set of dummy variables for legal origins (namely, French, German, Scandinavian, Socialist and English.) Botero et al. estimate this model by OLS with robust standard errors and data for 85 countries in year 1997. They find that legal origins are a substantially more important determinant of labor market reform than per capita GDP. They argue that this result favors the legal theories of institutional changes (and, by the same token, belittles the other two theories they identify, the efficiency and political theories.)

We then subject this baseline model to various robustness checks. In particular, we ask whether the taking into account the over time variation of our index affects the basic results. We investigate this first by fitting a simple pooled OLS model to the data (by simple we mean we run OLS on the pooled data without taking into account the panel structure.) We also run two split-sample exercises. The first estimates this baseline model separately for OECD and non-OECD countries. The second estimates the model separately for the pre- and post-1980 observations. The rationale for the first split of the samples is that richer countries may face quite different constraints than poorer countries. If so, this could be reflected by important differences in the determinants of LAMRIG between the samples. The justification for pre and post 1980 split is the widespread perception that this year somewhat marked the beginning of an era more favorable to market-oriented reforms than the previous 20 years or so (which were marked by interventionist import-substitution strategies, especially in developing countries).

Our second step in terms of estimation strategy is to exploit more decisively the panel

structure of our data. The fixed-effects estimator would be a natural starting point but one of the most important variables in the Botero et al (2004) exercise, legal origins, are time-invariant. Therefore our starting point is the random-effects estimator.¹⁵ The model we estimate takes the form:

$$LAMRIG_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 LO_i + \varepsilon_{it} \quad (2)$$

where again $LAMRIG_{it}$ is our index of Labor Market Rigidity for country i at period t . The subscript t refers to a 5-year period, where the measure is the average over the whole period. The nine periods included are: 1960-1964, 1965-1969, 1970-1974, 1975-1979, 1980-1984, 1985-1989, 1990-1994 and 1995-2000. In order to minimize country-specific errors, we clustered the standard errors at the country level. Using the random-effects estimator, we also carry out the same split-samples checks as for the baseline model, namely for OECD versus non-OECD and pre- and post-1980.

Thus far we have talked only about the levels of LAMRIG. Yet we define reform as changes in these levels. The third step in our estimation strategy is therefore to estimate changes in levels of LAMRIG. In order to do that, we recognize that labor market reform in one period is related to the amount of past progress in this reform. Hence, we capture this by enlarging the baseline Botero et al. model with a one-period (i.e. 5 year) lag of LAMRIG. The model we estimate takes the form:

$$\Delta LAMRIG_{it} = \alpha + \beta_1 LAMRIG_{i,t-1} + \beta_2 GDP_{it} + \beta_3 LO_i + \beta_4 X_{i,t-1} + \varepsilon_{it} \quad (3)$$

where $\Delta LAMRIG_{it}$ is the change in our index of Labor Market Rigidity for country i between period t and period $t-1$, with periods defined as before. This model will be estimated at first using the random-effects with standard errors clustered at the country level. Next, we re-estimate it by

¹⁵ The Hausman test contrasts the fixed- and random-effects estimator for models containing only the time-variant variables in these models. In this case, it is not very helpful because the test runs for a model that only contains per capita GDP.

adding variables for four different groups of factors (in $X_{i,t-1}$) namely, political crises, economic shocks, structural factors and other reforms. As the notation indicates, we always enter these factors lagged one-period. This is not only to minimize endogeneity concerns but also because the time window we use is somewhat lengthy and it may be that the reform occurs early in the window and any of these four factors later. By lagging these right-hand side variables we eliminate this concern.

As for the data we use in the estimation of the above models, the measure of the dependent variable in the analysis is the LAMRIG index, discussed above in considerable detail. The other two sets of variables in the baseline model are GDP and legal origins. Per capita GDP is from the Penn World Tables and the legal origins classification is provided by Botero et al. (2004).

In terms of structural factors, we collected data on the following variables from the World Development Indicators: the Gini coefficient, the Government share of GDP, the ratio of foreign aid to GDP, the share of natural resources exports in total exports and the share of agriculture in GDP.

For economic crises we include several different measures,¹⁶ namely, the largest single year GDP fall in percentage points that occurred in each five-year period (Max fall GDP), the number of years of negative GDP growth (between zero and five for each of the 5-year average period), the current account balance (CAB)¹⁷, the number of years in a debt crisis within each five year period (Debt Crisis), and a dummy variable for periods in which annual inflation was above 50%.

Regarding political crises, we limit our attention to the following indicators. The first

¹⁶ For a review, see Furman and Stiglitz (1998) and Ishihara (2005).

¹⁷ CAB is an inverse measure of crisis.

group comprises count variables for both the assassination of important political leaders and general strikes during each five year period. Both of these variables originate from Banks (2005). The second group comprises the democracy measure (from the POLITY IV data set) and also the Political Constraints Index (POLCON) provided by Henisz (2000). The Polity IV democracy variable is used to control for relative levels of democratic freedoms (coded in a 1 to 10 scale, with 10 indicating the highest level of democracy). The stronger is democracy, the more the median voter might be expected to exercise influence. Yet, because the median voter is more likely to be a worker or even a union member, the influence of democracy on labor market liberalization could be ambiguous or perhaps even negative. POLCON measures the number of veto points in a political system, the expectation being that the more potential vetoes need to be circumvented, the less likely it is that labor market reform will be adopted. The third and last group contains a measure of the intensity of civil war and of the intensity of international armed conflicts. Data for constructing these measures is from the *Correlates of War* project at the University of Michigan.

Finally we investigate the role of other structural reforms potentially affecting the probability that labor market reform is implemented. We focus on financial reform and on trade liberalization.¹⁸ We proxy financial reform by two measures: the share of credit to the private sector in GDP, and an index of financial development that reflects not the overall size of the financial system but its efficiency levels. In the case of trade liberalization, we use four measures. One is the length in years of uninterrupted trade liberalization derived from the Appendix 2-B of Warziarg and Welch (2003). Another measure is a measure of trade openness from PWT (*openk*, exports plus imports as a share of GDP). Thirdly, we use the trade

¹⁸ For a discussion of the relationship between trade liberalization and labor market reform see Fajnzylber and Maloney (2005), and references therein. Idem for financial reform and labor market reform, see Pagano and Volpin (2008).

liberalization index developed by Campos, Nugent and Hsiao (2006). The later further extends the Sachs and Warner (1995) measure of trade openness that was already corrected and extended from 1970-1989 to 1990-99 by Warcziarg and Welch (2003).¹⁹ Since Rodriguez and Rodrik (2000) and Rodriguez (2006) provide a powerful critique of the efforts of Sachs and Warner (1995) to relate their “open” measure to cross-country growth rates, we have incorporated these views in this measure of trade reform. A major objection of these authors was that the cross-sectional evidence on growth rates relied on only two of the five S-W criteria, namely, export marketing boards (XMB) and black market premium (BMP). In effect, this suggests that the S-W index of openness, even when extended by Warcziarg and Welch, in fact has little to do with trade restrictions in the form of tariffs and non-tariff barriers. Rodriguez (2006) also had some specific quarrels with the way XMBs were treated in their classifications of certain countries. Finally, he followed Warcziarg and Welch (2003) in using a lower tariff rate threshold (20% instead of the 40% in the original S-W) to distinguish “open” from “closed”.²⁰ Since most countries in the world had fallen below the 40% threshold by the mid- 1990s, this change has the effect of giving more weight to tariff barriers in the classification. Therefore, we construct an alternative measure that takes advantage of more recent information on XMBs (from World Bank and other sources) so as to distinguish between those marketing boards that in practice discriminate against producers for export markets from and those which do not, as well as these other suggestions. Given the view expressed most strongly in Rodriguez and Rodrik (2000), that

¹⁹ More specifically, these authors defined a country as closed (i.e., open =0) if it had any one of the following: (1) an average tariff rate of 40 per cent or more, (2) non-tariff barriers covering 40 per cent or more of trade, (3) a black market exchange rate that is depreciated by 20 percent or more relative to the official exchange rate, (4) a state marketing agency or board for major exports, and (5) a socialist economic system (as defined by Kornai 1992).

²⁰ This was used to show something that Warcziarg and Welch (2003) had already shown, namely that the positive relation between growth and open found by Sachs and Warner (1995) and others disappears when the lower threshold is used or when the period studied is that after 1990.

as far as growth is concerned, the key reform was BMP reduction, as another alternative we use simply BMP.

V. Assessing LAMRIG

Next we turn to an assessment of LAMRIG based on an examination of the determinants of the ELR indexes across countries and over time. Given that the lynch-pin for our construction of LAMRIG was the Botero et al (2004) data set for 85 countries, we begin our assessment in Table V.1 by trying to replicate some of the findings of that study. That study's basic finding was presented in their Table IV relating their ELR index to the log of per capita GNP, and dummy variables for Socialist, French, German and Scandinavian legal origins. The omitted legal origin was English Common Law. The results they reported for their sample of 85 countries is reported in column (1) of Table V.1. As can be seen, the explanatory power of the model was quite high and although the income per capita measure was insignificant the four legal origin dummy variables had highly significant positive effects on ELR.

In column (2) of this table we repeat their analysis based on the LAMRIG dataset for the same year but using our larger sample of 142 countries. Notice that the effect of income per capita is now negative and significant but all four legal origin dummy variables still have positive and highly significant effects on LMR (from now on designated LAMRIG). But our more fundamental extension of their dataset is its extension over time going back to the early 1950s in quite a few cases. OLS estimates of the pooled panel data (now consisting of 792 observations) are provided in column (3). In this case, the negative effect of higher income per capita is no longer significant (as in Botero et al (2004)) but all four legal origin dummies retain their positive and significant effects. Note that the effects of all of them on LAMRIG are now

considerably stronger than in the original Botero et al (2004). Given our earlier observation that in the 1950, 1960s and even 1970s, the ELRs were rising before stabilizing and declining in some cases in recent years, in columns (4) and (5) we break the sample into pre and post-1980 observations. While the results are very similar for the Socialist and French legal origin dummies, there are some notable differences in other respects. When split this way the negative coefficient of the Log Per Capita GDP is again statistically significant but quite a bit larger in the Pre1980 sample. On the other hand, the impacts of the German and Scandinavian Legal Origin dummies are larger and more statistically significant in the post 1980 sample. In each of the columns so far, the effects of the legal origin variables are quite consistent consistent with Botero et al.(2004) in that the socialist, French Civil Law and German Civil Law traditions in that order all have large positive effects on LAMRIG than the omitted Common Law tradition. The only difference is that in some of these cases, columns (2), (4) and (5) the Scandinavian Legal Origin has the largest positive effect.

Columns (6) and (7) provide the corresponding comparison between OECD countries and non-OECD countries, reflecting in large part differences in income. Notice that in our case, the non-OECD sample is considerably larger than the OECD sample. Again the various types of Civil Law dummies are shown to have significant positive influences in both samples (when there is sufficient variation of these variables in the sample to allow coefficients to be estimated). Both the French and Scandinavian Legal Origin variables have considerably larger effect in the OECD sample than in the non-OECD one. The most striking difference between the samples, however, is the difference in the effect of *Log Per Capita GDP*, quite large and positive in the case of the OECD sample, but negative and significant in the non-OECD sample. This would seem to help explain the opposing trends in LAMRIG indexes between high income and “Europe” regions and some of the other regions and income groups in Figures 1 and 2.

Given the aforementioned absence of change over time in the legal tradition upon which each country's legal system is based, as noted above, when fixed effects are used, the parameters for legal origin dummies cannot be estimated. We proceed therefore in the rest of our empirical analysis to estimate not the levels of LAMRIG but rather the changes in LAMRIG (i.e., reform reversals in labor market regulations). As explained in Section IV, this makes it appropriate to estimate the relationships in the LAMRIG panel with random effects and standard errors clustered at the country level with equation (3) above.

Table V.2 reports the results obtained for changes in LAMRIG first for the full sample (721 observations) and then for the same subsamples as in columns (3)-(7) in Table V.1 but based on this more appropriate (RE) estimation procedure. Once again, we find considerable variation across samples in the effects of Log Per Capita GDP, positive and significant in the post 1980 sample and negative and significant once again in the OECD sample. In all the other cases including the full sample, the coefficient of Log Per Capita GDP is not statistically significant. With the minor exception of the Scandinavian Legal Origin dummy (for which there is little variation in our samples), the coefficients of the various Civil Law Origin variables are no longer statistically significant. This confirms what we seemed to find in Table III.1. Note, that in great contrast to the estimates in Table V.1, the results are very weak with no more than one explanatory variable being significant in any column except for the OECD sample where there are two.

Given the rather glaring weakness of these results, in subsequent tables we add the lagged level of LAMRIG to the right hand side and a series of other determinants suggested by our brief review of the several country cases of Section III and by other literature.

Table V.3 reports the results when the added variable is one or another of the following structural variables: Income Gini, the government share in GDP, the share of foreign aid in GDP,

natural resource exports as a share of total exports and the share of agriculture in GDP. As expected, the effect of Lagged LAMRIG is always negative and significant indicating that there seems to be a convergence process going on in labor market regulations. This is quite consistent with the quite different trends between countries with initially low LAMRIG indexes and those with initially high ones in Figures 1 and 2 and the upward trends for Portugal and New Zealand whose initial LAMRIG scores were very low, and the downward trends from initially high scores for China and Jordan in Table III.1. Countries with high LAMRIG index values are likely to reform, i.e., lower their LAMRIG scores over time, whereas those countries with low LAMRIG scores are more likely to introduce reform reversals by raising their rigidity scores. Consistent with the results for the full sample (column 1) of Table V.2, the coefficients of Log Per Capita GDP are not statistically significant, except in column (1) where the Income Gini is the added structural variable. Somewhat surprisingly, the coefficients of the French, Scandinavian and Socialist Legal Origin dummy variables are once again positive and significant, though of course much smaller than in the estimates presented in Table V.1 for the level of LAMRIG. In most cases, the coefficients of the Socialist and Scandinavian Civil law dummies are also positive and significant, though again much smaller than before. None of the individual structural indicators has a significant effect on the change in LAMRIG. One should notice, however, that due to missing observations on these additional variables, the sample sizes are considerably smaller in this table, especially in columns (1) and (5).

In Table V.4 we present estimates similar to those of Table V.3 for changes in LAMRIG but in this case with five different measures of economic crises, in each case lagged to avoid the simultaneity and other problems identified in Section IV. Column (1) presents the results when the crisis is a debt crisis. Columns (2) –(5) report the corresponding results when the crises pertain to inflation rates above 30% per annum, a period including a year with the largest fall in

GDP during the period covered, the number of years of falling GDP within the five year period, and the current account, respectively.

Once again, the effects of Lagged LAMRIG are consistently negative and significant, those of French and Socialist legal origins positive and significant. The effects of Log Per Capita GDP are negative and significant in columns (1) and (2) but negative and not significant in columns (3)- (5). None of the economic crisis variables turns out to have a significant effect on the change in LAMRIG. As in Table V.3, the French, Scandinavian and Socialist Legal Origin variables all have small positive and significant effects.

Table V.5 substitutes political variables including political crises for the economic crisis and structural variables included in Tables V.3 and V.4. Column (1) adds Democracy, Column (2) uses instead the political constraints index (POLCON), column (3) assassinations, column (4) strikes, and columns (5) and (6) international and civil wars, respectively. As with the economic crises, these measures are all based on lagged values. Democracy has a negative but insignificant effect on the change in LAMRIG as does POLCON which is often considered another measure of democracy reflecting a system of checks and balances. So too neither strikes, international war and civil wars have significant effects on the change in LAMRIG. The one political crisis measure with an effect that is somewhat significant is that for Assassinations in column (3). This variable has a negative effect that is significant at the 10 percent level. (We trust that labor market reform zealots will not go so far as to recommend assassinations as a means of bringing about such reforms!). The findings of previous tables of significant negative effects of lagged LMRIG and the positive effects of the French, Scandinavian and Socialist Legal Origin measures are all retained in this table as well.

Finally, in Table V.6, to our basic specification we add alternative measures of other types or reforms, again lagged. In columns (1) – (3) we present the results for three alternative measures

of trade reforms. Column (4) presents estimates when the added variable is the black market premium (BMP), an inverse measure of trade reform. Columns (5) and (6) present results for two alternative measures of financial market reform/development, namely, the share of credit to the private sector in GDP and the Financial Reform Index, respectively. Again all the standard results apply. In addition in columns (1), (2), (4), (5) and (6) the effect of Log Per Capita GDP is again negative and significant (in most of these cases at the 5 percent level). The effects of the various lagged other reform measures vary considerably from case to case. Trade openness as measured by the first two measures in columns (1) and (2) reveal positive and significant effects on LAMRIG changes, meaning reform reversal. In the same spirit, an increase in the BMP premium has the effect of reducing LAMRIG. The two, financial reform measures raising the share of private credit in GDP and the financial reform index, by contrast have negative effects on changes in LAMRIG though only in the first case is the effect significant at the 10 percent level.

Taken together, the results could be interpreted as providing a somewhat positive assessment of LAMRIG. In particular, the cross-section results with the same specification as in Botero et al (2004) but based on our considerably larger data set replicate and perhaps even strengthen the Botero et al results for the legal origin variables. The estimated impact of per capita income, however, is different between the smaller Botero sample and the larger LAMRIG sample for 1997. In particular, while the effect is negative and significant in some of our specifications, especially those in Table V.6, the most important findings in this respect is the way its effect differs in different types of countries, being most strongly negative in the OECD sample of Table V.2 and most significantly positive in the post 1980 sample of the same table.

With respect to the legal origin dummies, the positive and significant influences cant in the Botero study are confirmed when the larger LAMRIG data set is used. This is true for both the

cross section and pooled estimates for levels of LAMRIG. Although these effects largely disappear when it is the changes in LAMRIG that are explained in Table V.2, they come back in again though in much smaller magnitudes when the Lagged LAMRIG is included among the explanatory variables.

Of the other variables we have introduced one at a time in the subsequent tables, only a few have significant effects. One is the Assassinations measure of Political crises which seems to have a weak negative effect on LAMRIG changes, implying LMR reduction or reform. The others are three of the four trade reform measures which in each case have positive influences, suggesting reform reversal and the private credit/GDP measure which has a significant negative effect on LAMRIG changes, suggesting that lagged reforms of this sort facilitate labor market reform whereas the opposite is the case for the aforementioned measures of trade reform.

VI. Conclusions and Future Research

The substantive results presented here are clearly only a beginning of a fuller analysis. We would like to further examine the robustness of the results, e.g., when several of the additional variables are retained in the estimating equation at the same time, or with more refined measures of some of the variables used. Similarly, in view of the differences in some of the effects between pre and post 1980 samples and between OECD and non-OECD samples, it would be desirable to examine the robustness of the results of the more inclusive specifications to different samples. Yet, even thus far, we find several interesting results:

(1) That, when the dependent variable is changes in the LAMRIG indexes, legal origin measures still exert significant though smaller influence than when as in the Botero study it is the level of the indexes that is estimated

(2) That none of the (a) structural variables (income Gini, Government share in GDP, Foreign

Aid to GDP, the share of natural resource exports in total exports and the share of agriculture) or (b) economic crisis or (c) political crisis measures (except Assassinations) seems to have much of an influence on LAMRIG changes.

(3) Consistent with the findings of other studies, labor market reforms may be affected significantly by other reforms. Our evidence, though limited to trade and financial reforms, is that lagged trade reform may set back labor market reform but that financial reforms may encourage labor market reforms.

(5) With respect to future research, in addition to the additional robustness checks and improvements in some of the measures of variables identified above, it is our intent to:

- (a) Further improve on LAMRIG by digging deeper into the ever-improving availability of information on labor laws over time and across countries,
- (b) Possibly to follow the lead of some researchers on OECD countries to annualize the data on LAMRIG as well as the related variables used to explain changes therein over time,
- (c) To extend the use of LAMRIG to examine its effects on labor market and other phenomena as Botero and many others have with somewhat smaller data sets.

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ADDITIONAL INTERNET SOURCES:

http://www.allacademic.com/meta/p_mla_apa_research_citation/1/0/0/1/7/pages100174/p100174-1.php

<http://www.state.gov/e/eeb/ifd/2007/80670.htm>

<http://www.lexadin.nl/wlg/>

<http://www.hrw.org/reports/pdfs/e/ethiopia/ethiopia913.pdf>

For a handful of nations (Ethiopia, Gabon, Guinea, Iran, Jordan, Mongolia, Taiwan) the NATLEX database did not provide ample information to be able to extrapolate index numbers. For these nations, we performed individual country searches using a variety of databases in order to attain more reliable data. The LEXADIN database proved particularly useful as it had more information on these nations than NATLEX.

Figure 1: Labor Market Rigidity Across Regions Since 1950

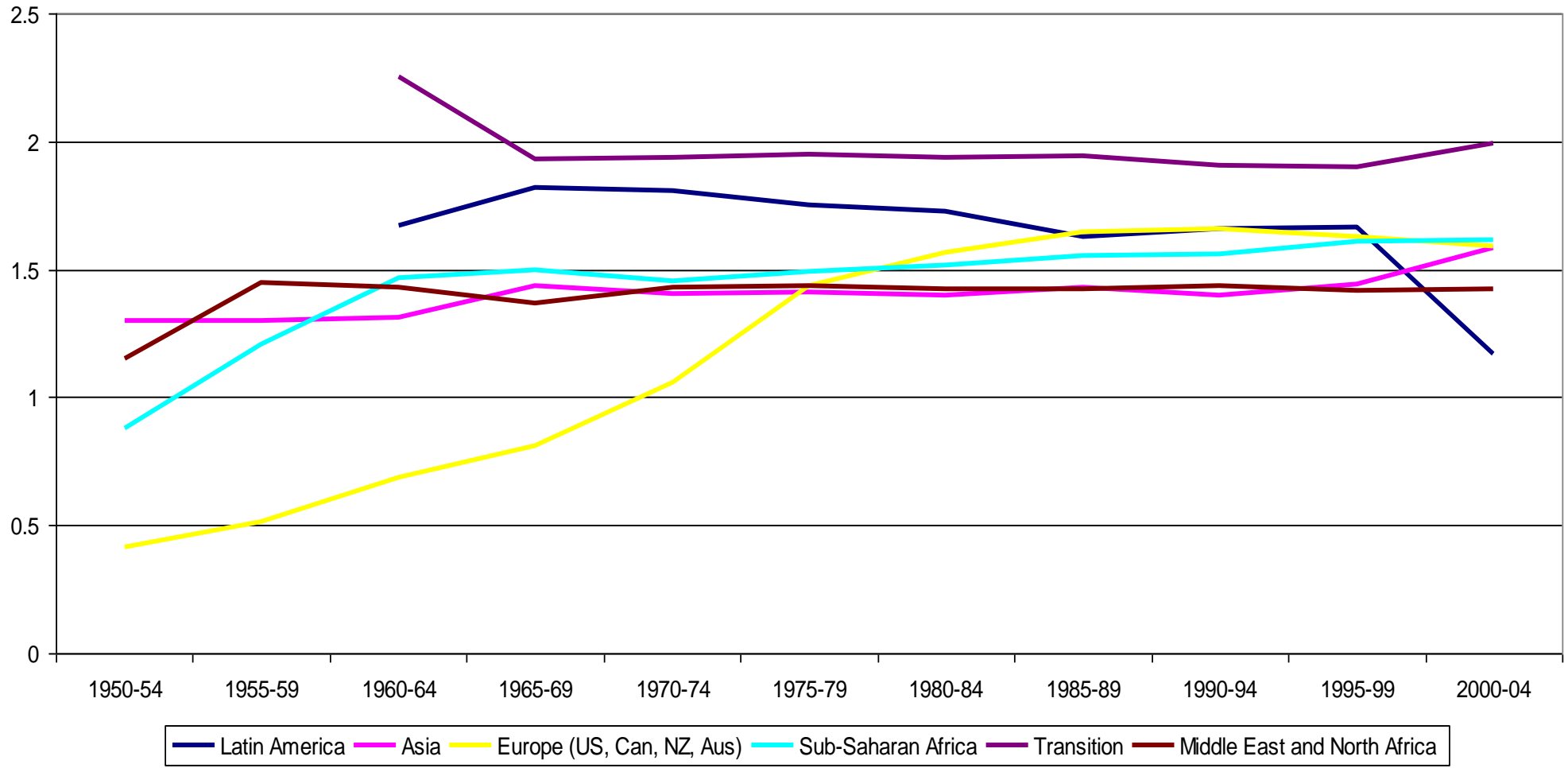


Figure 2: Labor Market Rigidity Across Per Capita Income Groups Since 1950

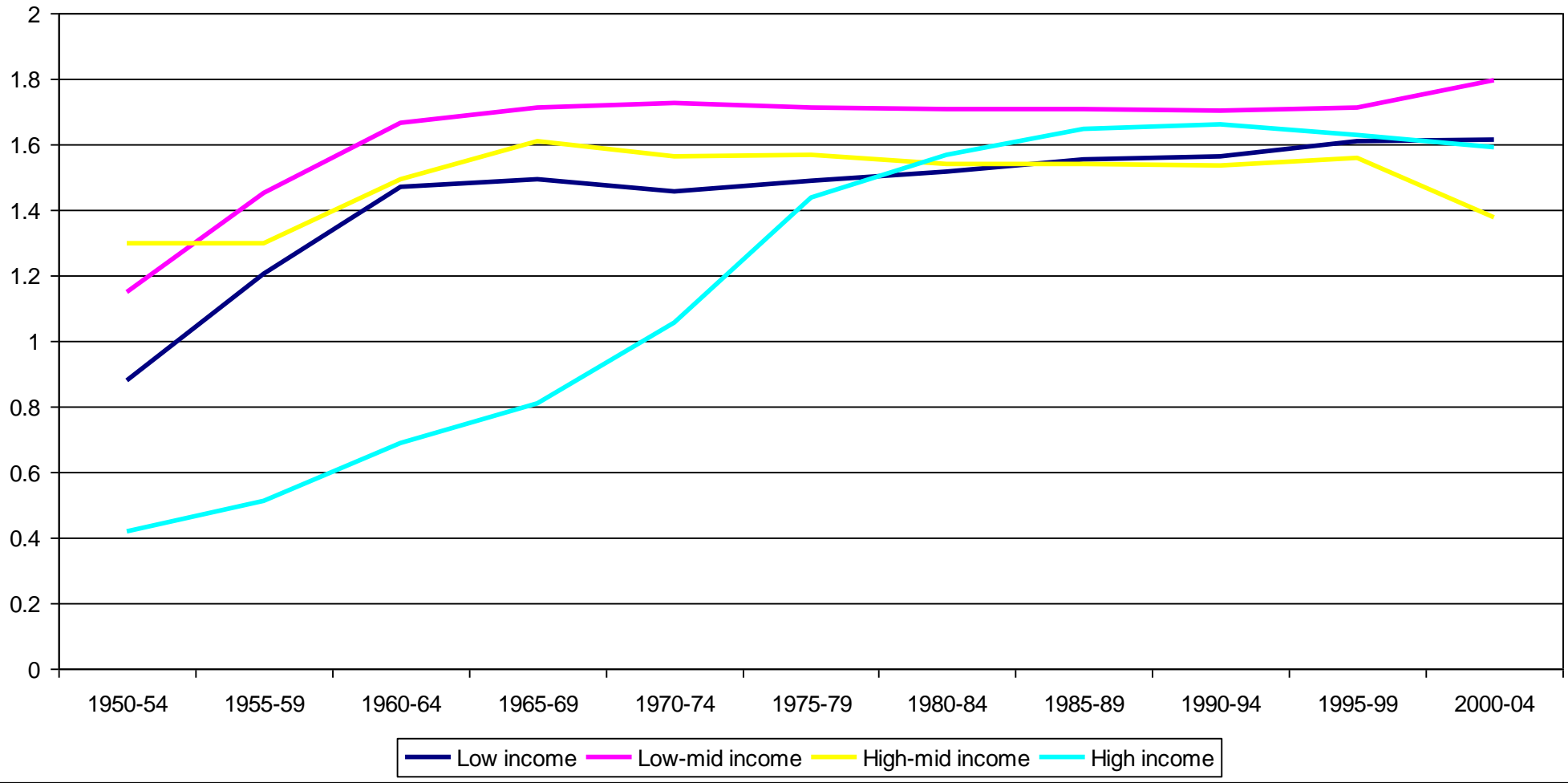


Table III.1**Country Scores on the Employment Law Rigidity Index (ELR) of Selected Countries Over Time**

Country	1960-4	1965-9	1970-4	1975-9	1980-4	1985-9	1990-4	1995-9	2000-4
China	2	2	2	2	2	1.8	1.62	1.62	1.41
India		1.1	1.1	1.15	1.2	1.3	1.3	1.3	1.53
Jordan	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.46	1.52
New Zealand	0.137743	0.137743	0.275486	0.4821	0.4821	0.4821	0.4821	0.4821	0.502761
Portugal	0.065578	0.314776	1.278778	2.295243	2.295243	2.393611	2.491978	2.4264	2.4264
Zambia			1.05	1.05	1.05	1.3	1.3	1.15	1.25
Botswana			0.9	0.9	1.0	1.0	1.3	1.3	1.05
Ethiopia			1.3	1.3	1.3	1.3	1.53	1.53	1.53
Philippines	1.4	1.4	1.6	1.6	1.6	1.69	1.69	1.61	1.80

Table V.1
The Extent of Labor Regulation, Legal Origins and Per Capita GDP
(Dependent variable: Level of LAMRIG, Labor Market Rigidity)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Botero et al.	Xsection	PoolOLS	Pre1980	Post1980	OECD	Non-OECD
<i>Log Per Capita GDP</i>	-0.001	-0.0716**	-0.00224	-0.160***	-0.0790***	0.428***	-0.0419***
	[0.0116]	[0.028]	[0.016]	[0.033]	[0.018]	[0.038]	[0.016]
<i>Socialist Legal Origin</i>	0.2943***	0.698***	0.956***	0.839***	0.839***		0.788***
	[0.0453]	[0.11]	[0.075]	[0.081]	[0.081]		[0.078]
<i>French Legal Origin</i>	0.2474***	0.477***	0.621***	0.669***	0.569***	1.109***	0.453***
	[0.0381]	[0.066]	[0.041]	[0.069]	[0.041]	[0.091]	[0.034]
<i>German Legal Origin</i>	0.1553**	0.474***	0.335***	0.192	0.535***	0.476***	0.333***
	[0.0702]	[0.12]	[0.096]	[0.16]	[0.089]	[0.15]	[0.096]
<i>Scandinavian Legal Origin</i>	0.3865***	0.901***	0.562***	0.503***	1.128***	1.074***	
	[0.0462]	[0.11]	[0.12]	[0.16]	[0.080]	[0.092]	
<i>Constant</i>	0.3072***	1.860***	1.067***	1.983***	1.826***	-3.211***	1.566***
	[0.1038]	[0.24]	[0.13]	[0.24]	[0.15]	[0.34]	[0.12]
<i>Observations</i>	85	142	792	324	468	222	570
<i>R-squared</i>	0.44	0.36	0.22	0.24	0.35	0.56	0.23

Notes: Robust standard errors in brackets,
*** denotes significant at 1%, ** at 5% and * at 10%.

Table V.2**Labor Market Reform, Legal Origins and Per Capita GDP****Dependent variable: Change of LAMRIG, Labor Market Rigidity****Random-Effects Panel Estimator with Standard Errors Clustered at Country Level**

	[1] PoolOLS	[2] Pre1980	[3] Post1980	[4] OECD	[5] Non-OECD
<i>Log Per Capita GDP</i>	-0.00214 [0.0058]	0.00186 [0.0069]	0.0380*** [0.013]	-0.0515*** [0.017]	-0.00813 [0.0050]
<i>Socialist Legal Origin</i>	0.03 [0.024]	0.0305 [0.025]	0.0305 [0.025]		0.0518** [0.024]
<i>French Legal Origin</i>	0.00364 [0.013]	-0.0169 [0.015]	0.0341 [0.022]	0.0491 [0.030]	-0.00478 [0.0088]
<i>German Legal Origin</i>	-0.0153 [0.029]	-0.0603 [0.043]	0.0133 [0.032]	0.039 [0.027]	-0.0459 [0.033]
<i>Scandinavian Legal Origin</i>	0.0980*** [0.036]	-0.0933* [0.049]	0.182*** [0.050]	0.0691** [0.034]	
<i>Constant</i>	0.0541 [0.043]	0.0167 [0.053]	-0.223** [0.090]	0.514*** [0.14]	0.0815** [0.037]
<i>Observations</i>	721	397	324	220	501
<i>Number of countries</i>	133	133	90	23	110

Notes: Robust standard errors in brackets,

*** denotes significant at 1%, ** at 5% and * at 10%.

Table V.3
Labor Market Reform, Inertia, Legal Origins, Per Capita GDP and Structural Factors
Dependent variable: Change of LAMRIG, Labor Market Rigidity
Random-Effects Panel Estimator with Standard Errors Clustered at Country Level

Structural Factor:	[1] Income Gini	[2] Govt Share of GDP	[3] Foreign Aid to GDP	[4] Natural Res Exports (%)	[5] Agric Share in GDP
<i>Lagged LAMRIG</i>	-0.192*** [0.053]	-0.162*** [0.019]	-0.146*** [0.017]	-0.169*** [0.019]	-0.134*** [0.020]
<i>French Legal Origin</i>	0.0917** [0.043]	0.103*** [0.021]	0.0962*** [0.020]	0.104*** [0.020]	0.0945*** [0.023]
<i>German Legal Origin</i>	0.0746 [0.066]	0.0383 [0.039]	0.0304 [0.035]	0.059 [0.039]	0.0153 [0.032]
<i>Scandinavian Legal Origin</i>	0.168** [0.080]	0.173*** [0.023]	0.168*** [0.022]	0.198*** [0.031]	0.171*** [0.024]
<i>Socialist Legal Origin</i>	0.120** [0.049]	0.169*** [0.035]	0.152*** [0.041]	0.178*** [0.041]	0.210*** [0.027]
<i>Log Per Capita GDP</i>	-0.0331*** [0.013]	-0.00199 [0.0060]	-0.00464 [0.0060]	-0.00731 [0.0056]	0.00501 [0.014]
<i>Lagged Structural Factor</i>	-0.00114 [0.0017]	0.000795 [0.00066]	0.000442 [0.00088]	0.000479 [0.00031]	0.0325 [0.060]
<i>Constant</i>	0.567*** [0.17]	0.203*** [0.053]	0.220*** [0.048]	0.261*** [0.048]	0.122 [0.12]
<i>Observations</i>	150	600	539	599	415
<i>Number of countries</i>	101	122	120	125	96

Notes: Robust standard errors in brackets,

*** denotes significant at 1%, ** at 5% and * at 10%.

Table V.4**Labor Market Reform, Inertia, Legal Origins, Per Capita GDP and Economic Crises/Shocks****Dependent variable: Change of LAMRIG, Labor Market Rigidity****Random-Effects Panel Estimator with Standard Errors Clustered at Country Level**

	[1]	[2]	[3]	[4]	[5]
Economic Crises/Shocks:	Debt Crises	High Inflation (>30% p.a.)	Max Fall of GDP	Years of Negative GDP Growth	Current Account Crises
<i>Lagged LAMRIG</i>	-0.181*** [0.031]	-0.234*** [0.031]	-0.161*** [0.018]	-0.156*** [0.018]	-0.147*** [0.016]
<i>French Legal Origin</i>	0.103*** [0.027]	0.133*** [0.029]	0.100*** [0.020]	0.0978*** [0.020]	0.101*** [0.021]
<i>German Legal Origin</i>	0.048 [0.044]	0.0924* [0.053]	0.0405 [0.037]	0.039 [0.035]	0.0254 [0.031]
<i>Scandinavian Legal Origin</i>	0.172*** [0.045]	0.274*** [0.043]	0.171*** [0.022]	0.170*** [0.022]	0.166*** [0.033]
<i>Socialist Legal Origin</i>	0.209*** [0.042]	0.283*** [0.043]	0.183*** [0.040]	0.178*** [0.036]	0.172*** [0.056]
<i>Log Per Capita GDP</i>	-0.0149** [0.0066]	-0.0154** [0.0069]	-0.00412 [0.0058]	-0.00454 [0.0056]	-0.00467 [0.0057]
<i>Lagged Economic Crises</i>	-0.00119 [0.012]	0.02 [0.023]	0.000592 [0.0016]	0.0104 [0.011]	0.0297 [0.021]
<i>Constant</i>	0.349*** [0.075]	0.408*** [0.068]	0.234*** [0.047]	0.228*** [0.046]	0.215*** [0.047]
<i>Observations</i>	453	538	606	606	528
<i>Number of countries</i>	124	123	125	125	118

Notes: Robust standard errors in brackets,

*** denotes significant at 1%, ** at 5% and * at 10%.

Table V.5**Labor Market Reform, Inertia, Legal Origins, Per Capita GDP and Political Crises/Factors****Dependent variable: Change of LAMRIG, Labor Market Rigidity****Random-Effects Panel Estimator with Standard Errors Clustered at Country Level**

	[1]	[2]	[3]	[4]	[5]	[6]
Political Crises/Factors:	Democracy	POLCON	Assassinations	Strikes	International conflict (war)	Civil war (intensity)
<i>Lagged LAMRIG</i>	-0.146*** [0.019]	-0.212*** [0.028]	-0.145*** [0.017]	-0.147*** [0.017]	-0.181*** [0.037]	-0.153*** [0.018]
<i>French Legal Origin</i>	0.0889*** [0.020]	0.122*** [0.026]	0.0976*** [0.020]	0.0976*** [0.020]	0.0913*** [0.030]	0.115*** [0.025]
<i>German Legal Origin</i>	0.0471 [0.031]	0.0997** [0.044]	0.0547 [0.035]	0.0561 [0.036]	0.137** [0.060]	0.0930*** [0.030]
<i>Scandinavian Legal Origin</i>	0.181*** [0.024]	0.275*** [0.044]	0.163*** [0.022]	0.165*** [0.022]		0.184*** [0.025]
<i>Socialist Legal Origin</i>	0.145*** [0.040]	0.189*** [0.048]	0.153*** [0.041]	0.150*** [0.041]	0.180*** [0.062]	0.178*** [0.058]
<i>Log Per Capita GDP</i>	-0.000665 [0.0081]	-0.00873 [0.012]	-0.00529 [0.0053]	-0.00527 [0.0055]	-0.00631 [0.0085]	-0.000246 [0.0058]
<i>Lagged Political Crises</i>	-0.00231 [0.0030]	-0.0534 [0.060]	-0.0129* [0.0071]	-0.0133 [0.015]	-0.0092 [0.0068]	0.00743 [0.0052]
<i>Constant</i>	0.203*** [0.048]	0.350*** [0.077]	0.227*** [0.045]	0.229*** [0.046]	0.286*** [0.065]	0.175*** [0.048]
<i>Observations</i>	570	538	567	567	316	485
<i>Number of countries</i>	119	122	120	120	76	93

Notes: Robust standard errors in brackets,

*** denotes significant at 1%, ** at 5% and * at 10%.

Table V.6**Labor Market Reform, Inertia, Legal Origins, Per Capita GDP, Trade and Financial Reforms****Dependent variable: Change of LAMRIG, Labor Market Rigidity****Random-Effects Panel Estimator with Standard Errors Clustered at Country Level**

	[1]	[2]	[3]	[4]	[5]	[6]
	Wacziarg Open Uninterrupted	C.N.Hsiao Trade Lib	PWT openk	BMP	Credit Private Sector/GDP	Financial Ref Index
<i>Lagged LAMRIG</i>	-0.163*** [0.019]	-0.163*** [0.019]	-0.148*** [0.018]	-0.211*** [0.025]	-0.194*** [0.027]	-0.238*** [0.028]
<i>French Legal Origin</i>	0.113*** [0.022]	0.111*** [0.021]	0.0979*** [0.021]	0.130*** [0.024]	0.130*** [0.031]	0.145*** [0.028]
<i>German Legal Origin</i>	0.0489 [0.040]	0.0556 [0.041]	0.0416 [0.032]	0.0649 [0.052]	0.0312 [0.053]	0.104** [0.050]
<i>Scandinavian Legal Origin</i>	0.167*** [0.022]	0.163*** [0.022]	0.165*** [0.023]	0.265*** [0.040]	0.232*** [0.048]	0.284*** [0.040]
<i>Socialist Legal Origin</i>	0.240*** [0.040]	0.207*** [0.046]	0.155*** [0.038]	0.279*** [0.030]		0.233*** [0.050]
<i>Log Per Capita GDP</i>	-0.0213** [0.0089]	-0.0196** [0.0086]	-0.00396 [0.0053]	-0.0147** [0.0070]	-0.0137* [0.0080]	-0.0161** [0.0072]
<i>Lagged Other Reforms</i>	0.0827*** [0.028]	0.0702** [0.027]	0.00000975 [0.00013]	-0.000003*** [0.00000027]	-0.000000120* [0.000000072]	-0.0277 [0.034]
<i>Constant</i>	0.336*** [0.066]	0.326*** [0.065]	0.219*** [0.044]	0.371*** [0.062]	0.347*** [0.077]	0.437*** [0.068]
<i>Observations</i>	588	580	579	514	326	538
<i>Number of countries</i>	114	120	117	108	84	118

Notes: Robust standard errors in brackets,

*** denotes significant at 1%, ** at 5% and * at 10%.