The Effects of Labor Protection on Indian Productivity

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May 02, 2017

Abstract

This paper measures the impact of a 1984 amendment to India's 1947 Industrial Disputes Act on economic productivity and welfare up to the year 2013. I estimate the treatment effect of the amendment by specifying the levels of productivity for a synthetic India (without the passing of legislation) using a compilation of countries with similar economic structures, and comparing it to the actual levels of productivity for India. Particularly driven by a lack of labor efficiency in the labor intensive manufacturing industry, the treatment effect corresponds to an approximate 40% decline in GDP levels. Regulating in a way that only targets firms of a certain size has been shown to be associated with a shift in firm size distribution in labor intensive industries, and a corresponding fall in wages as well as productivity. This suggests that attempts of policies like the 1984 amendment to protect laborers may dis-incentivize the growth of enterprises particularly in the manufacturing industry, inevitably hurting those the policy is most trying to protect.

Introduction

The economy of India has been growing at a very impressive rate, averaging over 7% since the year 2000 – overtaking China and adopting the label as one of the fastest growing economies in the world (Tejani, 2016). Indeed, the standard of living for the upper 20% of the population (in terms of income levels) has improved drastically and significantly as a result of this rapid economic expansion. In light of this fast growth however, India faces two major issues that demand rigorous analysis of the implications of particular policy decisions on the country's future economic trajectory--the first of which is India's impending demographic dividend. Despite high rates of undernourishment, India's population has experienced a dramatic decline in mortality rates (a 70% decline since 1950) as well as an increase in life expectancy—an average increase of 4.5 years per decade (Bloom, 2011). The fertility rate, moreover, has declined from 6 children per woman in the 1950's to 2.5 children per woman today. These demographic transitions suggest further growth in the working-age share of the population. In fact, in both pessimistic and optimistic scenarios of projected fertility rates, the demographic dividend bodes well for a potential additional percentage point or more of per capita income growth—even surpassing the working-age ratio during East-Asia's economic high-point (Bloom, 2011). As the country makes its shift into these more favorable demographic structures, a certain caveat arises where the realization of these demographic dividends is wholly dependent on the economy's ability to appropriately absorb workers into productive employment.

Unfortunately, the current view of India's ability to fully absorb the benefits of its demographic transition seems grim given its second issue: growing income disparity. Despite high expectations for India to push a significant portion of the 419 million (in 2004) individuals under the poverty line out of their impoverished states (World Bank Poverty Data, 2017), the

impact of growth has been less than dramatic and certainly not significant for the majority of the growing population (Dreze and Sen, 2013). For instance, the National Sample Survey data reports that the average per capita expenditure rose an abysmal 1 per cent annually from 1993-4 and 2009-10 in rural areas. Moreover, expenditure grew only at 2 percent for urban areas, meaning that the expenditure growth rates for the particularly poor would have been even lower than that (Dreze and Sen, 2013). In fact, when using official urban and rural poverty lines, the results greatly understate the rising trend in inequality as the household consumption surveys miss large increases in top-end incomes. This is confirmed by the fact that from 1996 to 2008, wealth holdings of Indian billionaires have risen from 0.8 percent of GDP to 23 percent (World Bank, 2011). As a more pungent and immediate exposition, the latest National Family Health Surveys reports that there was "virtually no improvement in children's weights between 1998-9 and 2005-6," with the incidence of anemia *increasing* during that period (as cited in Dreze and Sen, 2013). Even with thirty years of booming economic growth, India currently still has one of the highest proportions of undernourished children compared to almost any other country in the world.

The phenomenon of economic growth without increases in living standards for the poorer sections of the population, and the corresponding failure in generating sustainable employment, is described as 'jobless growth'. The phenomenon is predicated upon a basic model by Kaldor in 1967, which asserts that "economic growth [involving] the use of modern technology and which eventuates in high real income per capita, is inconceivable without industrialization (Kaldor, 1967)." This is consistent with traditional views that put labor intensive industries like manufacturing at the center stage of progressive structural change and economic development. This is given historical parallels in successful Asian economies that have grown their GDPs as a

result of growing shares of their respective manufacturing sectors (Besley & Burgess, 2004). India, on the other hand, has not experienced significant expansions in its manufacturing industry as a share of national income—signifying its modest growth rates between 1960 and 1995, as well as its inability to decrease absolute poverty levels (Besley & Burgess, 2004).

The reversal of India's "jobless growth" in light of its demographic shift is very important to its future economic performance. Although there are a multitude of causes for this underlying pattern, the key issue of this paper is to determine whether particular policy decisions play a significant role; namely, the role of labor protection laws in the stifling of efficient and effective labor movement and productivity. More specifically I study the impact of the 1984 amendment to the Industrial Disputes Act of 1947, which drastically increased the number of firms that were required to obtain prior permission of appropriate authorities before resorting to any layoffs, retrenchments, or closures. While only firms with 300 or more employees were previously required to adhere to the "prior permission clause," the passing of this amendment then required firms with 100 or more employees to adhere to this standard (Hasan & Jandoc, 2013). Contingent studies have found that larger firms are generally more productive, more secure, and a pay higher wages than smaller firms (Hasan & Jandoc, 2013). The hypothesis of this paper is that as this amendment targets a certain distribution of (larger) firms, its implications infer a loss of productivity since "enterprises must shrink in order to avoid lifetime liabilities" (Dougherty et al., 2014). The inhibition of larger firms particularly in labor intensive industries, as well as the inability for the labor market to flow efficiently into these areas of productivity has and will prevent the realization of impending economic progress (GDP growth), *especially* as the working-age share of the population skyrockets.

History of India's Labor Regulation

The history of India's labor regulation is marked by a series of enactments and reforms that date back to the 1920's. In 1926 the Trade Unions Act was established to provide for the legal registration of trade unions, and in 1929 the Trade Disputes Act placed harsh restrictions on the ability to strike (Mitchell, Petra, & Gahan, 2014). From both of these enactments emerged a more modern approach to India's regulation of industries. Then followed the Government of India Act of 1935, which not only strengthened provincial autonomy within the country, but also gave rise to a popular expectation that more employee-friendly policies would be in play at the provincial government level (Mitchell, Petra, & Gahan, 2014). This sentiment proved to be true, especially during the World War 2 and pre-independence period, where considerable industrial unrest and strike movements arose given the conditions and detrimental ramifications of the war. In order to assure labor cooperation (in support of war efforts), Bombay (now called Mumbai) passed section 49A of its 1938 Industrial Disputes Act which granted power to the Bombay government to establish an Industrial Court which would refer industrial disputes to compulsory arbitration (Mitchell, Petra, & Gahan, 2014).

Following that, with the introduction of the broader 1947 Industrial Disputes Act (IDA), labor courts were opened to be used for any industrial dispute, and establishments needed to seek permission by corresponding labor departments to implement any working change within its labor force. Simultaneously, regulation pertaining to individual workers' rights continued to strengthen where enactments like the 1948 Factories Act increased the working conditions of laborers (Mitchell, Petra, & Gahan, 2014). Much of these labor laws, although aiming to expand the rights and conditions of workers, were commonly applied to only specific types of business establishments, which in respect to the Industrial Disputes Act, meant businesses that pertained

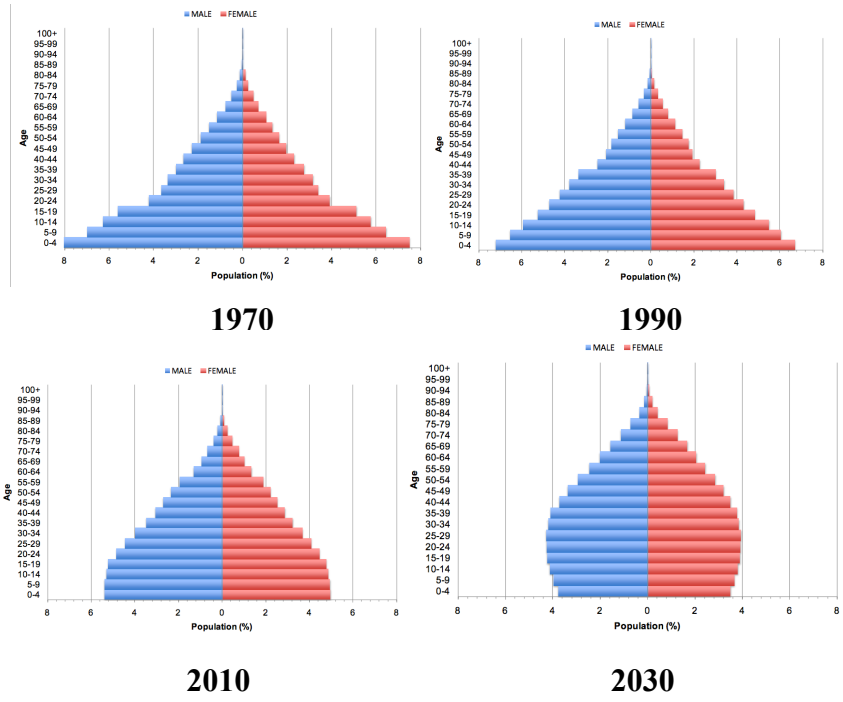
to a particular size (determined by the number of employees). This included areas of employment security where the government, in accordance with amendments to the Industrial Disputes Act in the 1950's – 1980's, began to introduce substantial regulations regarding retrenchments, layoffs, and plant/industry closures (Mitchell, Petra, & Gahan, 2014). The mentioned amendment in 1984 is the culmination of the strong theme of targeted restrictions underlying the Indian labor regulation environment starting from the 1920's, which is still continuing on today.

Preliminary Analysis

Demographic Dividend

The efficacy of such labor laws in promoting or stagnating economic development has been and is still being rigorously contested—especially in the context of the country's growing demographic dividend. As Figure 1 below demonstrates, the ratio of working age individuals will soon overtake the demographic structure of the country. From 1970 to the 1990's, the majority of India's population consisted of individuals too young to be productive members of society (age 0 – 15). From the year 2010 onwards, however, the demographic composition of the population shifts more towards those that are of prime working age (age 20-40). Yet although the trends project that a large employable population will soon be available for productive activity, it is imperative that corresponding policies be conducive for these individuals to appropriately enter into the workforce so that India would realize the economic benefits emerging from this demographic dividend. If India is to reap the rewards of its workable population, there must be a system that enables the efficient flow of appropriate labor into areas of most demand.

Figure 1



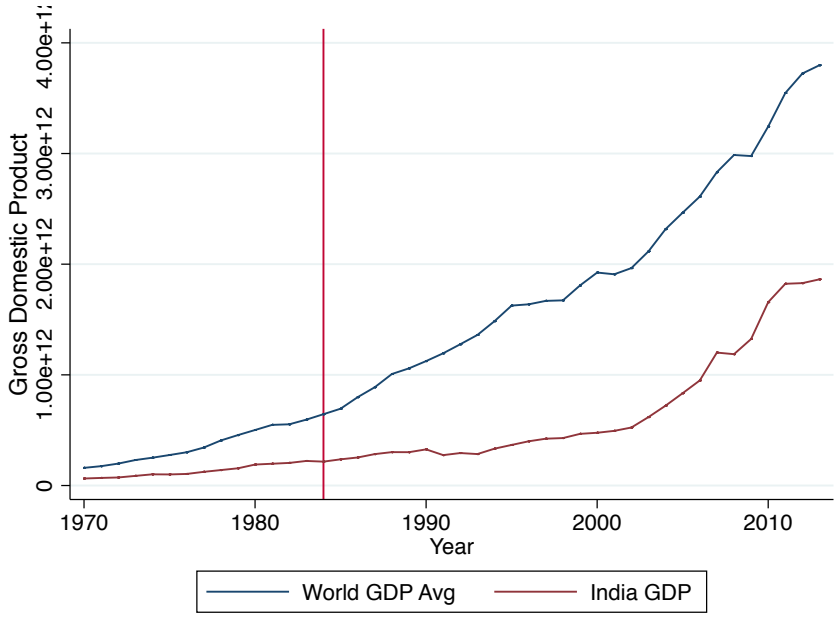
Source: (Bloom, 2011).

Productivity Shifts

The role of labor protection policy, though important in the face of a growing demographic dividend, is also crucial in the broader theme of country-wide economic productivity. The amendment to the Industrial Disputes Act in 1984 substantially changed the flexibility of firms to restructure and change their labor force (Hasan & Jandoc, 2012). Preliminary analysis comparing the levels of Indian GDP and the average levels of multiple countries with similar economic compositions as India (what is called "World GDP" in the figure below) reveals that the trajectory of productivity begins to change for India at a certain point in time. Namely, a divergence from average levels can be seen starting somewhere around 1984, as Figure 2 demonstrates with the red vertical line. During this period the distance between the

average world GDP and India's GDP grows larger, suggesting that this time frame was an important transition in economic trends. In order to more deeply examine the implications of the specific amendment change in 1984 on the Indian economy, I employ the synthetic control methodology further elaborated on in the next section.

Figure 2



Methodology

In this analysis I use the synthetic control method used commonly in comparative case study research, in order to determine whether or not the amendment in 1984 to the Industrial Disputes Act of 1947 played a significant role in the trajectory of gross domestic productivity for India. Conventional data-driven procedures that attempt to compare affected units (which in this case is the country affected by labor protection policy) with unaffected units (countries not affected by a particular labor protection policy in a given point in time) in order to determine the

impact of the policy, are usually constrained by the difficulty of finding a singular unaffected unit that sufficiently approximates the most relevant characteristics in the unit of interest (India) (Abadie, 2010). The synthetic control method estimates the treatment effect of the particular policy or intervention by constructing a "counterfactual" that takes the weighted average of control units to represent the trajectory of the treated unit had there not been an intervention (Abadie, 2010). The optimization algorithm in STATA's synthetic control package chooses these weights by minimizing the average of squared discrepancies (mean square prediction error) between the outcomes of the treated unit and its synthetic control counterfactual before the intervention/policy period (Abadie, 2010).

Compared with traditional regression models, the synthetic control method provides two advantages which allow for research honesty and transparency as well as safeguarding against potential sources of extrapolation. The nature of the synthetic control method inherently makes explicit the different weights of the various control units that contribute to the synthetic control, as well as initial differences or similarities between the synthetic control and the unit treated with the intervention (Abadie, 2010). This provides protection against extrapolation by making transparent the disparities that exist between the synthetic control and the treated unit, in addition to the relative contributions of each control unit towards that existing disparity (Abadie, 2010). Moreover, because the choice of a synthetic control does not demand prior knowledge of post-intervention time outcomes, I am able to remain blind to potential results when making decisions about my research design, which is particularly important in the context of research integrity given observational data.

One potential weakness in using the synthetic control method is the risk of interpolation bias, which is caused by interpolating across regions with very different characteristics. Abadie,

however, encourages that by choosing control regions that are most similar to the treated unit, the bias may be minimized as prospective sources of interpolation are reduced (Abadie 2010). Still, the understanding of what is "similar" or "not similar" is subjective, and unseen differences between regions cannot be fully eradicated. The results of the model, then, must be taken into consideration with this vulnerability in mind.

Data and Sample

I use annual country-level panel data for the period 1970-2013. Chapter VB of the Industrial Disputes Act of 1947 required all firms employing a 'specified number' of workers to first obtain permission by the appropriate government or designated authority before being able to make any layoffs, retrenchments, or closures. The amendment incorporated in 1984 that reduced the specified number from 300 workers to 100 workers, allows me to work with 15 years of pre-amendment data. The data sample begins in 1970 and ends in 2013 because those were the years for which aggregate data on productivity levels, gross capital formation, education levels, as well as population and labor population levels exist for both India and its corresponding control countries. Given the risk of interpolation, I chose ten countries that most seemed to parallel characteristics of India's economic environment as the donor pool, from which the control units would be algorithmically chosen. This includes: Pakistan (Indexed as 2), Japan (Indexed as 3), China (Indexed as 4), Korea (Indexed as 5), Rwanda (Indexed as 6), the United Kingdom (Indexed as 7), Malaysia (Indexed as 8), the United States of America (Indexed as 9), and Sri Lanka (Indexed as 10).

The outcome variable of interest is the annual gross domestic product level at the country level, obtained from the World Bank DataBank (2016). Each country's GDP level was calculated

in current U.S. dollars, where the dollar figures for each foreign country were converted from domestic currencies using single year official exchange rates. In attempting to measure the treatment effect of this labor protection law amendment on productivity, it seemed most appropriate to use gross domestic product as the most relevant indicator.

The corresponding predictors of gross domestic product are: gross capital formation (in current U.S. dollars) which consists of expenditures on additions to the fixed assets of the economy plus net changes in the level of inventories, annual population growth rates (expressed as a percentage) which counts all residents all regardless of legal status/citizenship, the working age population (expressed as the percentage of individuals in the total population that are between the ages 15-64), and the gross primary enrollment ratio which includes the total enrollment in primary education (regardless of age and gender) expressed as a percentage of the population of official primary education age. I averaged these variables over the 1970-1975 period and further augmented them by adding one year of lagged gross domestic product. These data also come from the World Bank DataBank (2016), collected through sample surveys of households, business establishments, and government institutions.

Data on country level labor protection regulation changes and intensity levels for both India and its corresponding control countries were found using the Leximetric Datasets provided by the Centre for Business Research (CBR) in Cambridge. The datasets provided legal data for 117 countries between 1970-2013, carried out using the "leximetric" coding methodology where an index was developed to measure the extent to which a given aspect of employment or labor relations is regulated or protected (Adams, Bishop, & Deakin, 2016). This was done by identifying the provisions of law and relevant court decisions applicable to each of the indicators

in the index, each step in the process drawing from the advice provided by national experts (Adams, Bishop, & Deakin, 2016).

Synthetic Control Model

Using this data, my aim is to construct a synthetic India that would mirror the values of the predictors of GDP in India before the 1984 amendment to Chapter VB of the Industrial Disputes Act of 1947. The estimated difference between India and its synthetic counterfactual in the years after 1984 represents the approximate effect of the amendment on gross domestic product. The simple model below provides the intuition for using the synthetic control method. We have data on ten countries, nine of which are potential controls for India. Let $GDP^{N}_{India,t}$ be the level gross domestic product that would be observed for India at time t in the absence of the Industrial Disputes Act amendment in 1984. In addition, let $GDP^{I}_{India,t}$ be the observed level gross domestic product in the presence of the amendment. The goal of the synthetic control method as adopted from Abadie (2010), is to determine the isolated treatment effect of the amendment upon the level of output in India by estimating the difference between the two levels of output at time t—also represented below as α:

$$\alpha_{\text{India}} = GDP^{I}_{\text{India, t}} - GDP^{N}_{\text{India, t}}$$

Interpreted another way, if $D_{India,t}$ is an indicator that takes the value of one if India is exposed to the amendment at time t, and zero otherwise, then:

$$GDP_{\text{India, t}} = GDP^{N}_{\text{India, t}} + \alpha_{\text{India, t}} D_{\text{India, t}}$$

where

$$D_{\text{India, t}} = \begin{cases} 1 & t \geq 1984 \\ 0 & otherwise \end{cases}$$

The goal of the synthetic control method is to eventually estimate ($\alpha_{\text{India,To}}, \alpha_{\text{India,To+1}}, \ldots \alpha_{\text{India,T}}$) where T_o is the time of the amendment to the Industrial Disputes Act (1984), and T is the last year in the data. If $t = T_o$ or $t > T_o$,

$$\alpha_{\text{India, t}} = GDP^{I}_{\text{India, t}} - GDP^{N}_{\text{India, t}} = GDP_{\text{India, t}} - GDP^{N}_{\text{India, t}}$$

where because $GDP^{I}_{\text{India,t}}$ is observed in our data, all that is needed to estimate the treatment effect α_{India} is to estimate $GDP^{N}_{\text{India,t}}$, which is given by the weighted average of the nine potential controls (j = 2…10) and their corresponding predictors of gross domestic product. The value of GDP for each potential synthetic India is indexed by w_j, where $w_2 + \ldots + w_{10} = 1$. For each particular combination of weights, the potential synthetic control is given by the model below:

$$GDP^{N}_{\text{India, t}} = \sum_{j=2}^{10} w_j GDP_{\text{j, t}} = \delta_t + Z_t \sum_{j=2}^{10} w_j PopGrowthRate_j + \beta_t \sum_{j=2}^{10} w_j LaborPopPerc_j + \Lambda_t \sum_{j=2}^{10} w_j Edu_j + \Psi_t \sum_{j=2}^{10} w_j GDP_{j,t-1} + \Gamma_t \sum_{j=2}^{10} w_j GCF_j + \sum_{j=2}^{10} w_j \epsilon_{j,t}$$

If w_j* denotes the optimal combination of weights such that the mean squared predicted error between the synthetic control and India before the amendment in 1984 (using the algorithm programmed in STATA's synth package),

$$\sum_{j=2}^{10} w_j^* GDP_{j,T_o} = GDP_{India,T_o}$$

where

$$GDP^N_{\text{India, t}} - \sum_{j=2}^{10} w_j^* GDP_{j,t} \approx 0$$

as the number of pre-amendment periods in the data approaches ∞ relative to the scale of transitory shocks. As a result, in order to estimate $\alpha_{\text{India,t}}$, the treatment effect of the labor amendment in 1984 upon India's GDP, the model below is used,

$$\hat{\alpha}_{India,t} = GDP_{\text{India, t}} - \sum_{j=2}^{10} w_j^* GDP_{j,t}$$

which is graphically represented (in the next section) as the distance between India and its synthetic counterpart.

Results

Table 1 below presents the weights of each control country in the synthetic India. This table indicates that GDP levels in India before the 1984 amendment to the Industrial Disputes Act of 1947 is best paralleled by a combination of Pakistan, Japan, China, Korea, and the United Kingdom, with all the other countries assigned a zero-weight. Table 2, moreover, presents the predictor balance between the predictors of India and its synthetic counterpart with a standard error or 7.45 billion out of an average of 1.877 trillion (or 0.04%)—a relatively strong result

Table 1

Country Weights:

Country Index	**Unit Weight**
(2) Pakistan	.494
(3) Japan	.048
(4) China	.29
(5) Korea	.045
(6) Rwanda	0
(7) United Kingdom	.123
(8) Malaysia	0
(9) United States	0
(10) Sri Lanka	0

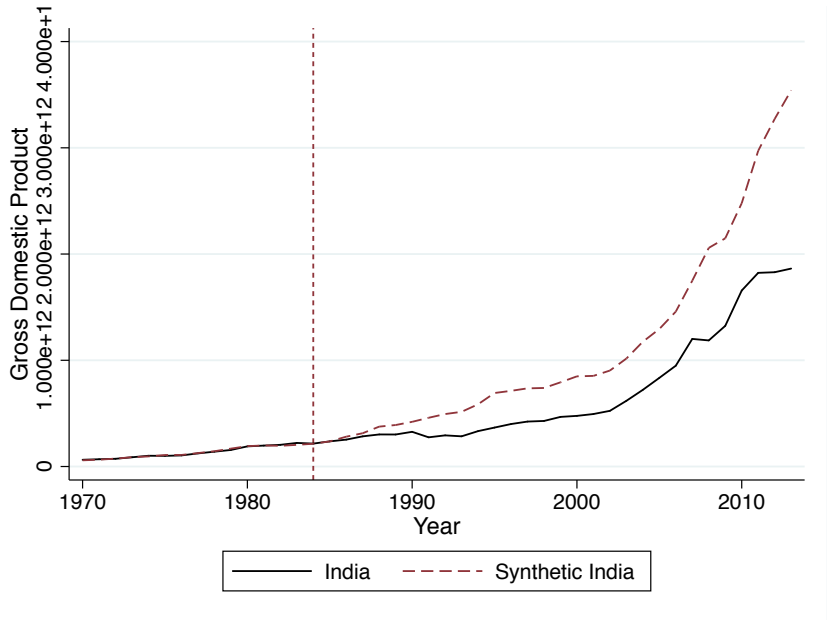
Table 2

Predictor Balance:

RMSE: 7.45e+09 (GDP Level)	**India**	**Synthetic India**
PopGrowthRate	2.291397	2.22965
LaborPopPerc	56.07463	55.98365
Edu	80.80203	80.91213
(Logged) GDP_{1974}	25.34107	24.32435
GCF	1.41e+10	2.44e+10

Figure 3 below presents GDP levels for India and its synthetic counterpart (country weights detailed above) from 1970-2013. In this figure, the values of GDP for India prior to 1984 very closely resemble the values of GDP for its synthetic counterpart, demonstrating that the synthetic India is a very appropriate approximation to the level of GDP had the amendment not passed. The estimate of the treatment effect of the amendment on GDP levels in India is the difference between GDP in India and its synthetic counterpart after the passage of the amendment. Almost right after the 1984 mark (the time of the amendment) a noticeable divergence in the two GDP levels becomes very apparent, which suggests a substantial negative impact of the amendment on GDP levels. To exemplify the magnitude, in 2008, the difference in GDP between India and its synthetic counterpart is roughly 800 billion, which is almost a 40% decline.

Figure 3



Robustness

In order to test the robustness of these results, I also use the synthetic control method to compare the natural log GDP growth rates between India and its synthetic counterpart. Table 3 reveals the composition of the synthetic control which again includes Pakistan, Japan, China, and the United Kingdom, but now excludes Korea. Table 4 also estimates that the standard error is 0.05 which suggests a strong approximation. The result of the synthetic control method, seen in Figure 4 continues to tell the story of a decline in GDP growth rates after the passage of the amendment in 1984, as the GDP growth rate between India and its synthetic counterpart diverges quite significantly.

Table 3

Country Weights:

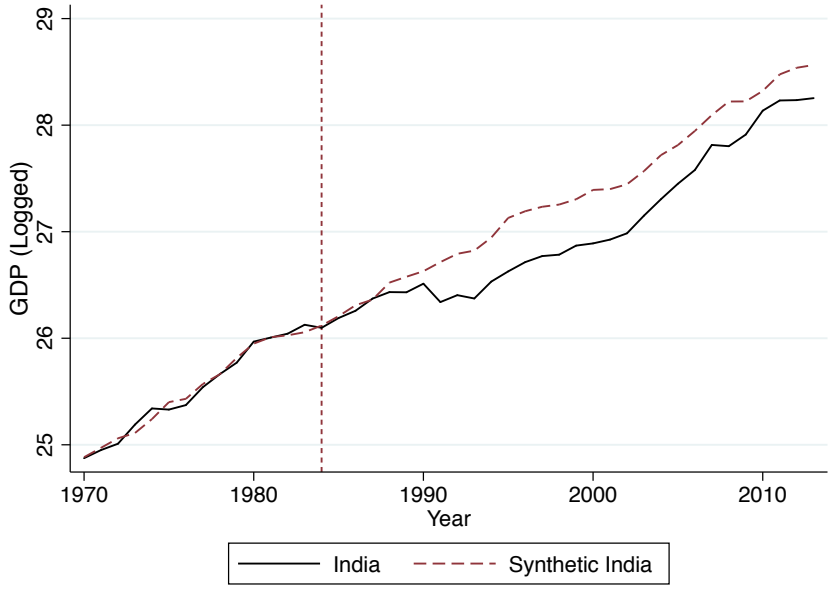
Country Index	**Unit Weight**
(2) Pakistan	.258
(3) Japan	.163
(4) China	.368
(5) Korea	0
(6) Rwanda	0
(7) United Kingdom	.211
(8) Malaysia	0
(9) United States	0
(10) Sri Lanka	0

Table 4

Predictor Balance:

RMSE: .0507761 (GDP Logged)	**India**	**Synthetic India**
PopGrowthRate	2.291397	1.850695
LaborPopPerc	56.07463	58.55239
Edu	80.80203	93.40999
(Logged) GDP_{1974}	25.34107	25.2407
GCF	1.41e+10	4.59e+10

Figure 4



Manufacturing Sector

Logically speaking, an amendment that restricts labor flows would most impact industries that require the most labor flow. Given the highly intensive labor requirements of the manufacturing sector, I test the same synthetic control methodology using the natural-logged net output of a sector in current U.S. dollars after adding up all outputs and subtracting out all intermediate inputs for industries belonging to ISIC divisions 15-37 (comprehensively recognized as Manufacturing Value Added). By using this metric instead of GDP, I am able to pinpoint the specific areas of productivity decline, which would also hopefully shed light on *what about* this particular amendment is restricting economic growth. Moreover, this metric serves as another test of robustness by proving consistent with the trends seen with GDP as the variable of interest even while adding another dimension to the analysis done.

Table 5 reveals the composition of the synthetic control which includes China, Korea, Malaysia, and Sri Lanka (reasonably different from the previous composition of synthetic controls since each country's manufacturing composition can be different from their respective GDP composition). Table 6 also estimates that the root mean standard error is 0.09, suggesting a strong approximation. Compared to Figure 4, Figure 5 depicts a similar but more pronounced divergence between India and its synthetic counterpart. This result is consistent with the narrative of the amendment's effect on India's productivity (shown in Figure 3 & 4), and further illuminates that this decline in productivity largely stems from a lack of efficient labor flows— a necessity for a well performing manufacturing sector. This result, to go a step further, is supported by the previously mentioned Kaldorian model of economic growth, which bolsters the argument that the continuing poverty levels and lack of higher per capita income (as well as the corresponding higher standards of living) is due to India's weakening manufacturing sector. This weakening manufacturing sector, as elucidated by the figure below, is due to the passage of the 1984 amendment.

Table 5

Country Weights:

Country Index	**Unit Weight**
(2) Pakistan	-
(3) Japan	-
(4) China	.611
(5) Korea	.112
(6) Rwanda	-
(7) United Kingdom	-

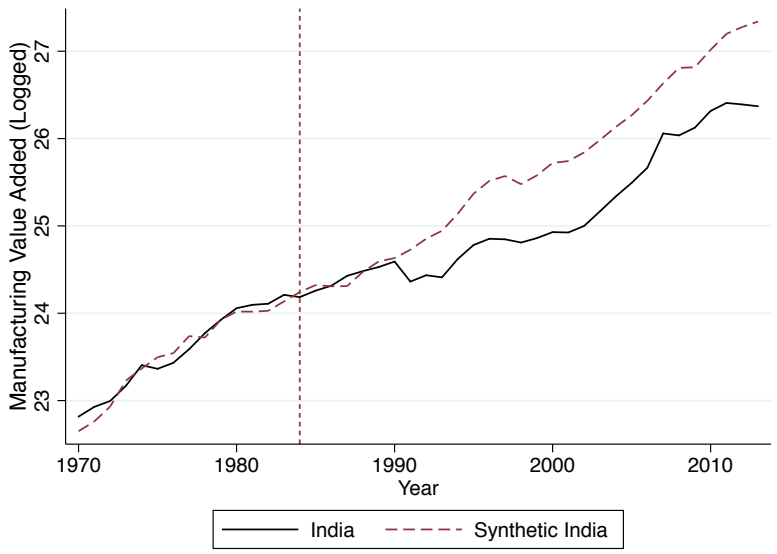
(8) Malaysia	.233
(9) United States	-
(10) Sri Lanka	.043

Table 6

Predictor Balance:

RMSE: .0975068 (Logged Manufacturing Value-Added)	**India**	**Synthetic India**
PopGrowthRate	2.291397	2.278846
LaborPopPerc	56.07463	55.11091
Edu	80.80203	106.5099
(Logged) GDP_{1974}	25.34107	24.65699
GCF	1.41e+10	2.62e+10

Figure 5

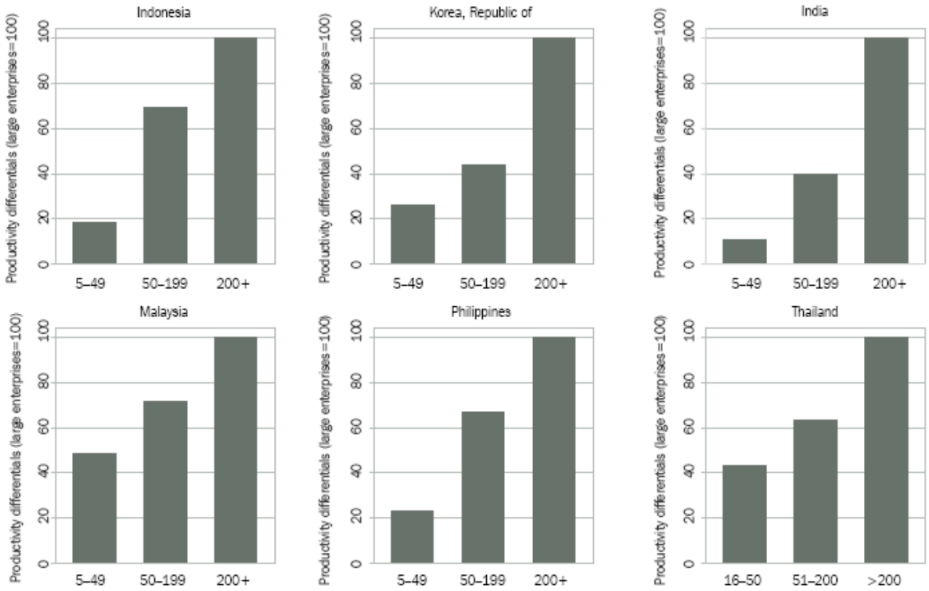


Discussion

The aim of this study was to determine whether the passage of the 1984 amendment negatively impacted the trajectory of Indian economic development. The statistical tests seem to affirm that this is the case, and further reveal that this is extremely relevant to the manufacturing industry. Yet to further understand *what about* the legislation may have caused this treatment effect, it is important to distinguish the different facets of the market that are particularly impacted. As the amendment expands restrictions to firms of 100 or more employees, the results above seem to infer that the size of businesses within the country are an important determinant of economic growth. A recent study proved that when restricting attention to labor-intensive industries (manufacturing), larger sized firms are significantly more prevalent in states with flexible labor regulations compared to those with stricter labor regulations—a differential that was greatly increased after the 1984 amendment (Hasan & Jandoc, 2012). In other words, firms no longer grew their size as a direct result of the 1984 amendment.

Reasonably, businesses will no longer have an incentive to increase in size as a result of the amendment since the benefits of growth would be mitigated by the imposed restrictions of the legislation. The particular interest in this shifting size distribution is prompted by the robust link between business size and various features of industrial performance like labor productivity, security, and wages. Figure 6 below from the Asian Development Bank clearly depicts the internationally consistent phenomenon that larger firms produce more sustainable value for the economy.

Figure 6



Source: (ADB, 2009).

Regardless of whether or not the correlation above represents a causal relationship between firm size and productivity, any factor that restricts the growth of firms (by making labor flows inefficient) will have detrimental implications for the economic success of any enterprise. Therefore, the significant decrease in larger-sized firms post-1984 amendment, and the corresponding diminishing levels of productivity seem to suggest that the decline in economic growth may be more specifically due to the amendment's peculiar target of firms that are above a certain size. Moreover, the fact that this result is especially exaggerated in the manufacturing sector underscores the amplified impact of the amendment on sectors with intense labor requirements.

The implications of this analysis suggests that future study be directed towards understanding the direct causal-role of firm size on the productivity of an economy. Moreover, a

more in-depth focus on the function of the manufacturing industry in the robust development of an economy as well as the eventuation of high income per capita should be pursued. The results of this paper demonstrate that the passage of an amendment most restricting large firms in labor intensive industries have a very significant impact on the trajectory of the Indian economy. Finding the direct effect of each of these components (firm size and industry size) by controlling for the myriad of factors also contributing to economic decline, would enable policy makers to redesign future legislation in order to bolster economic performance while also maintaining the rights of workers. Especially in the context of India's growing demographic dividend, it is imperative for Indian authorities to use these insights to strategically direct the growing labor force into the most productive areas of growth.

Conclusion

This paper has examined the link between the 1984 amendment to the Industrial Disputes Act and the long term development of the Indian economy. The evidence displayed suggests that this regulatory amendment played a key role in the future development (or lack thereof) of the economy's productivity, and may provide reason for India's "jobless growth" phenomenon. Levels of GDP as well as productivity within the manufacturing sector were shown to be negatively affected by the passing of this amendment, where little evidence was found to support the notion that the regulatory amendment promoted the interests of labor.

Though there is always a possibility of confounding in the synthetic control method, the results still remain robust given the consistency of results using both GDP as well as Manufacturing Value Added as the dependent variables. Moreover, the data tells a logical story that is backed by the analysis from Hasan & Jandoc (2012), purporting that the distribution of

firm size in a given state has a statistically significant impact on the productive trajectory of that region.

The results furthermore underscore the growing sentiment that labor protection regulation in developing countries, though intending to promote the welfare of the laboring population, may actually diminish future possibilities of employment and market growth. Given that the amendment examined here is a very specific type of legislation (one that is only relevant to firms of a certain size), generalizing a stance would lead to extrapolation; instead, the hope of this study and the future direction of studies like this is to leverage the peculiar components of the amendment to discover actionable insights about what deters or promotes economic growth.

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