

Alma Mater Studiorum – Università di Bologna

DOTTORATO DI RICERCA IN
European Doctorate in Law and Economics

Ciclo __27__

Settore Concorsuale di afferenza: __13/A2__

Settore Scientifico disciplinare: SECS-P/02

HOW LAW AND LAW ENFORCEMENT AFFECT LABOUR MARKETS IN DEVELOPING COUNTRIES: AN EMPIRICAL EVIDENCE FROM INDIA

Presentata da: Rahul Sapkal

Coordinatore Dottorato

Prof. Luigi Alberto Franzoni

Relatore

Prof.Dr. Hans-Bernd Schäfer

Prof.Dr. Michael G. Faure

Esame finale anno 2016

How Law and Law Enforcement Affect Labour Markets
in Developing Countries;
An empirical study on India

De invloed van recht en handhaving op arbeidsmarkten
in ontwikkelingslanden;
Een empirische studie over India

Proefschrift ter verkrijging van de graad van doctor aan de
Erasmus Universiteit Rotterdam op gezag van
de rector magnificus
Prof.dr. H.A.P. Pols
en volgens besluit van het College voor Promoties

De openbare verdediging zal plaatsvinden op
donderdag 13 oktober 2016 om 11.30 uur
door

Rahul Sapkal
geboren te Mumbai, India

Promotiecommissie

Promotoren: Prof.dr. H.-B. Schäfer
Prof.dr. M.G. Faure LL.M.

Overige leden: Prof.dr. P. Mascini
Prof.dr. S. Motiram
Dr. M. Kovač

This thesis was written as part of the European
Doctorate in Law and Economics programme



A collaboration between



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



Universität Hamburg



ACKNOWLEDGEMENTS

It goes without saying that writing doctoral thesis involves several difficulties as well as challenges. It also includes a journey where we confront different set of unique problems. One of the major challenges that I had encountered while writing this dissertation has been the absence of any prior cross-disciplinary research work on Indian labour law and economics. Hence in order to undertake this study, I dwelled into a process of detailed discussions, debates and intense team efforts before I attempted to undertake a meaningful analysis. First and foremost, I would like to extend my deepest gratitude to Prof. Dr. Hans-Bernd Schäfer who has consistently given me an enormous amount of his time, intellectual stimulation and attention. Without his guidance, this dissertation would not have fructified into its present form. His foresighted guidance and comments led to significant improvements in the thesis. His generous help, patience, and encouragements immensely inspired me to elevate my motivation level. His intellectual guidance and constant encouragement has been indispensable in keeping me focused and productive. For all this and a lot more, I am extremely grateful to Prof. Schäfer. Words are incapable to express the support and guidance that you provided throughout this journey.

When I started my work, I was not acquainted with the law and legal studies and needed help to sharpen the research questions and guidance on how to take my initial steps. In this, I was guided by Dr. Ann-Sophie Vandenberghe, who introduced me to the world of labour laws and helped me in demystify legal jargons and get a grip of comparative labour laws. I would like to thank Dr. Ann-Sophie for her critical comments and discussions on the contents of the thesis. Dr. Ann-Sophie, you are more than a supervisor for me. During my hard times, you have acted as a perennial sounding board, morale booster and mentor. I am so grateful to have you in my doctoral endeavor.

I am very much obliged to Prof. Sripad Motiram for his inspirations, kindness and continuous support. This study has greatly benefited from his extensive insights and comments. Prof. Dr. Motiram and Prof. Dr. P.G. Babu from IGIDR, without whose help and encouragement I would probably never have embarked on a PhD. I owe great thanks to Prof. Dr. Patrick C. Leyens who made every effort to introduce me to EDLE family.

I also take this opportunity to express my gratitude to Prof. Dr. Michael G. Faure for his guidance, time and thoughtful comments on the thesis. I take this opportunity to thank Prof. Dr. Stefan Voigt for his insights and comments on earlier drafts of the thesis which were crucial in constructing the

robust empirical design. I am also grateful to Prof. Dr. Thomas Eger and Prof. Dr. Luigi A. Franzoni for their lively talks and discussions which were always a source of excitement to me.

A number of friends have helped me enormously by providing essential moral support and offering critical insights. The cumulative effect of their individual gestures has often been quite profound. In particular, I would like to thank Jun. Prof. Dr. Franziska Weber, Johannes Schwarze, Jarek Kantorowicz, Elena Reznichenko and Hossein Nabilou for acting as morale boosters and for grooming my intellectual curiosity.

In India, the dream of pursuing PhD degree would not have been possible without constant support from friends with whom I grew up academically- Daksha Parmar, Saqib Khan (mia), Awanish Kumar, Karan Raut, Ravi, Tushar, Sakshi, Shweta Shetty, Arjun Da, Divya Kanan, Bheem, Pindiga Ambedkar, Aditi, Asha, Vikas Vaibhav, Swapnil, Ashmita, Anup Bhai, Arvindan, Aadra, Vasundhara and Manohar Kumar (Baba). Special thanks to Prof. Dr. T Jayaraman, Ms. Silva Lieberherr Prof. Dr. R.Ramakumar, Prof. Dr. Vineet Kohli and Ms. Tejal Kanitkar for their intellectual guidance and constant encouragements which has been indispensable in keeping me focused and productive.

It is also a great pleasure to thank the participants of numerous seminars in which each chapters of this work were presented over the last four years. Special thanks to the RILE staff who scrutinized our works in progress during the EDLE seminars in Rotterdam especially Prof. Dr. Wicher Schreuders, Dr. P.T. M. Desmet, Prof. Dr. Klaus Heine, Prof. Dr. Alessio M. Paccès and especially, Prof. Dr. Louis Visscher and Prof. Dr. Jonathan Klick

Thanks to Ms.Marianne Breijer, Ms. Frauke Schmidt, Ms. Simone Rettig, Ms. Lisa Verniti, and Ms. Shuela Subrizi to whom I often refer as real pillars of the EDLE programme. Without their helping hands, this journey would not have been a memorable and pleasant. Really thank to all of you to help me out in the time of great need.

Last but not least, I would like to thank my wife Daksha Parmar for her unwavering support over the past few years, not just as a life partner but as a fantastic friend who have turned me a perfect person.

Finally, I would like to thank my family- Aai and Baba, and my in-laws for putting up with the years of discomfort on account of my endeavours to write this thesis, and for being extraordinarily supportive.

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LIST OF ABBREVIATIONS:

ADR	Alternative Dispute Resolution System
CGIT	Central Government cum Industrial Tribunal
CITU	Centre of Indian Trade Union
CLA	Contract Labour Act
CO	Conciliation Officer
DID	Difference In Difference
ENF	Enforcement
EPL	Employment Protection Legislation
GDP	Gross Domestic Product
GOI	Government of India
HSA	Hindu Succession Act
IDA	Industrial Disputes Act
ILO	International Labour Organisation
IMF	International Monetary Fund
ISF	Indian Staffing Federation
MGI	Mckinsey Global Institute
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NIC	National Industrial Classification
NSSO	National Sample Survey Organisation
OECD	Organisation for Economic Co-operation and Development

OLS	Ordinary Least Square
RDI	Rural Development Institute
RTI	Right To Information
RTI	Right to Information
SEZ	Special Economic Zones
SQRT	Square Root
USA	United States of America
UT's	Union Territories

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CHAPTER ONE

INTRODUCTION

“Institutions form the incentive structure of a society and the political and economic institutions, in consequence, are the underlying determinant of economic performance”¹.

-Fogel and North (1993)

This dissertation is an attempt to contribute to the discipline of labour law and economics through conducting an empirical analysis of the functioning of labour laws in India. It examines how changes in labour laws and legal institutions, which operate within and outside the legal purview, affect the functioning of the labour markets. The study also sheds light on the functioning of law and lawlessness, which might be of general interest for understanding the labour markets in many other developing countries.

1.1. Background:

The relevance of law in the economic development of a country is widely acknowledged in academia and policy making. Legal and social institutions govern both the society and economic processes by providing a framework for interaction between individuals. Thus, *law matters*. However, the ways in which it matters, are heavily contested. In recent years, an area which has seen an intense debate surrounding the efficacy of the law is the relationship between the inflexible labour market institutions and various labour market outcomes. The laws, practices, policies, and norms that fall under the umbrella of labour market institutions determine *inter alia* what kinds of employment relationships are permissible in the labour markets. These institutions set boundaries for wages and benefits; determine working hours, and conditions; define the rules for collective representation and bargaining; proscribe certain employment practices, and provide social protection for workers. Almost every country based upon its prevailing economic conditions, designs an industrial relation system and labour laws to protect workers and act as a redistribution mechanism to ensure a minimum amount of income for all working age population.

After the end of Second World War, the industrial relation system was devised with the aim of regulating the industrial climate and to promote a harmonious relationship between the

1. Lecture to the memory of Alfred Nobel, December 9, 1993.

employer and employees. With the emergence of economic liberalization, the system of industrial relations and labour laws, which was once believed to ensure the smooth functioning of labour markets, however, began to appear as an institutional constraint that was likely to slow down job creation and labour turnover. Moreover it also started creating well protected insiders and almost unprotected outsiders.

At present, the existing empirical literature which assesses the direct impact of labour laws or labour market institutions has been shaped by neoclassical labour economics which consider that labour law rules operate as an exogenous interference with the operation of market forces (Stigler 1946). This idea later set the tone for much of the economic discussion on the analysis of labour laws and industrial regulations (Posner 1984). In the neoclassical model, wages and employment are set by the interaction of supply and demand for labour. The market operates as an implicit regulator of decisions to trade that generate incentives for firms who bear the risk of losing workers to their competitors and for workers who bear the risk of exclusion from employment as firms could substitute capital for labour or perhaps even finish trading (Deakins 2009). Moreover, labour laws and their institutions are seen as an external source of inefficiency which reflects the rent-seeking behaviour of collective groups who control the labour market process. As a result, the rent-seeking, as it is aimed at redistribution rather than value creation, imposes a deadweight loss on the economy and hence, it constitutes a major source of inefficiency (ibid). These sources of inefficiencies resulting from distortions in the operation of labour markets were primarily driven by legal interferences (Kaufman 2009). This view later became a driving force to design the labour market flexibility – a strategy proposed by the OECD (Organisation for Economic Co-operation and Development) for selected industrialised countries which were responsible for facilitating the creation of jobs and reducing the negative impact of labour regulations. The World Development Report (2005), for instance, argued that the deregulation of the labour market would improve the investment climate. Subsequently, the International Monetary Fund (IMF) has taken this position in various discussions for policy coherence among international organizations that labour market flexibility is a key instrument for the employment creation and economic development.

Given this background, two compelling views have emerged and have dominated the debate on the labour markets in the developing countries. According to neoclassical economics, labour markets are perfect and competitive, and wages as well as employment levels are set by the demand for and supply of labour (Kaufman 2009). This view advocates

minimum state intervention to reduce inefficiency in the labour markets. On the contrary, the view from institutional economics argues that the labour markets are inherently imperfect and structurally unbalanced; wages, and employment conditions determined by market forces tend to have a significant element of inefficiency (Deakin 2009 and Freeman 2005). Therefore, this view postulates that the role of labour market institutions needs to be strengthened to promote allocative efficiency in the distribution of work and worker's welfare. In both views, the debate over the relationship between the labour market and labour market institutions has intensified as globalisation and technological change have exposed both the developed and developing countries to greater competition and raised the stakes for finding the optimum institutional framework to govern the labour market. Voluminous qualitative and quantitative approaches have been used to analyse the economic impacts of labour market institutions and to investigate the effect of a specific labour law or policy that may have a significant impact on labour market outcomes. Research in the 1990s, mostly from OECD countries, typically found that the labour market institutions that were introduced with good intentions had unintended negative consequences on the functioning of labour markets. However, since then considerable progress has been made to study the impact of labour market institutions in a single country framework. Such a framework fostered their scepticism about the economic impact of labour market institutions.

The functioning of the labour market is not only affected by the labour market institutions and labour laws but also by other non-labour market institutions which have an indirect impact through a changing division of labour within the family. The "Family" as a socio-economic unit in a given society greatly influences the division of labour, and resource allocation within and outside the family (Becker 1981). It also determines consumption and saving patterns and acts as a decisive factor in labour market participation. Earlier analyses treated the family as a homogenous entity with regard to consumption and production. It further assumed that all household resources and incomes are pooled, and this pooled resource represents the household's tastes and preferences, whose utility the family seeks to maximise. However, with the changes in laws, many studies have noted its impact on the changes in the value of existing social relationships and bargaining power within households. For instance, in the United States of America (USA), the impact of changes in the divorce law on the female labour supply and educational attainments has generated considerable empirical research. These changes also reduced investment in marriage specific capital, while increasing the labour force participation of both married and unmarried women. As a result, laws that affect the family

and alter the bargaining power within the household by providing incentives for participation in the labour market, have also emerged as a key instrument for active labour market intervention and a strategy for inclusive development(World Bank 2013).

1.2. Aim of the study:

This study contributes to the discipline of labour law and economics through conducting an empirical analysis. Unlike previous attempts which consider the legal institutions as a simple coded index drawn from the black letter laws of legal statutes, it is proposed to allow a more nuanced understanding of labour market institutions that takes into account the dynamics of local contexts, examines how it helps shape the economic behaviours and provide the systematic empirical evaluation of changes in labour laws on the macro indicators of labour markets. While so doing, the aim is to advance understanding about how the labour market and non-labour market institutions function and influence the functioning of labour markets in the single country framework of India. It however, will allow capture of the widely different institutional environments given the federal character of India with 29 member states and 7 Union Territories having an equal number of partly different labour laws.

Specifically, India as a representative country from the pool of many developing economies has been selected to study how the observed outcomes in the labour markets are influenced by the labour market and non- labour market institutions in India. The context of the Indian economy also appears to be an interesting place for the empirical investigation, since it is the world's largest federal democratic country, whereby labour laws and inheritance laws differ between the member states of the Union of India. The federal structure between the central government and its member states assumes a joint responsibility for law making and enforcement as enshrined in the Constitution of India- Directive Principles of the State Policy. This setting provides the diversity and statistical variance, which makes the statistical analysis particularly interesting. Due to its notable democratic institutions derived from colonial history, such a study would not be possible for any centralist state like France, China, Turkey or even many Sub-Sahara African Countries.

Following the reforms in the 1990s, the Indian economy has achieved a remarkable progress in Gross Domestic Product (GDP) which has attracted the world's attention. The average annual growth rate of the Indian economy hovered around 6.3 to 6.5 percent for the period between 2000 and 2014. This period was also marked as a period of the demographic

dividend that India is banking on to provide the country's 63.4 percent active working age populations (15-64 years) to the global economy. During the same time, this growth trajectory was largely criticised for yielding the jobless economic growth with the persistence increase in unemployment among youths by several prominent scholars. Rigid labour market institutions and an inflexible business environment were mooted as the principal factors impeding the labour market performance. Hence, in order to reduce the negative impact on the labour market, the state unleashed a slew of labour laws reforms aimed at promoting a business friendly economic environment and to improve its ranking in the World Bank's Index on Ease of Doing Business. This dissertation analyses the impact of three of India's legal reforms on the labour market outcomes and investigates the impact of those reforms on the observed labour market outcomes.

1.3. Research Questions:

Can labour market institutions be blamed for the poor economic performance in developing countries? The prevalent view is that they can be. This is based on a simplistic theory of the workings of labour markets, with the intersection of demand and supply curves for labour determining the "market-clearing" levels of wages and employment. In this view, the labour market institutions – however well-intended – are the primary sources of labour market rigidities. To promote flexibility in the labour market, many developing countries have started the institutional reform to compete in the global market. However, these reform measures were taken as a response to macro shocks in the labour market which were considered as institutional barriers. These reform measures were strongly guided by the insights of New Classical Economies which aims to accelerate the pace of economic growth and productivity so that benefit of higher economic growths will be trickle down to the least productive sectors. For instance, Brazil in the 1990s and Chile in the 2000's started massive labour market reform programmes to deregulate the labour market in response to the exchange rate crisis and to the increasing rate of unemployment respectively (World Bank 2006). Unlike the developed countries, the labour markets in developing countries are characterised by a large informal sector and lack of compliance with labour regulations. Therefore, the developing countries' labour markets appear to be a special case to assess whether the labour and non-labour market institutions have had any significant impact on the functioning of labour markets.

This dissertation will address the following three specific research questions.

The first research question is: *What is the impact of strict employment protection legislation (EPL) and the law enforcement on the rise in the proportion of temporary contract workers, who are not protected by these labour laws? And to what extent do firms located in a stricter EPL regime hire differentially more temporary contract workers in response to variable enforcement intensity?* Answering this question is important because, across the world, employment arrangements have been witnessing a dramatic shift from a decrease in the share of regular employment towards an increase in the share of temporary contract workers with little or no protection from labour laws. The existing body of literature argues that restrictive EPL, in particular strict dismissal laws, increase the adjustment costs of regular workers through raising the costs of firing, and discourage firms from adjusting their workforce. Hence, there has been an extensive reliance on the temporary contract workers to increase labour market flexibility - an employment adjustment technique to manage the labour demand flexibly. The results drawn from these studies are based on the developed countries' labour markets, which give little consideration to the developing countries that have a low level of compliance with labour laws and have a huge informal sector which escapes the labour law, regulatory law and tax law almost altogether. This peculiarity of labour markets in developing countries especially in the case as discussed above will allow an estimate of the interactive effect of EPL (*de jure*) and Enforcement Intensity (*de facto*) on the incidence of temporary contract workers by exploiting the variations across space and time in the extent of EPL and enforcement intensity.

The second research question is: *What is the impact of mandatory and non-mandatory conciliation mechanisms on the negotiated settlements and on the dispute resolution time? Are they effective instruments to avoid strikes and lockouts, and thus contribute to improved industrial relations? Is the mandatory reconciliation mechanism superior to the non mandatory mechanism in this respect or vice versa?* This chapter will analyse the impact of an amendment to section 2(a) of Industrial Dispute Act of 1947 which provides a multi tier dispute resolution mechanism. According to the new amendment to the Industrial Dispute Act in 2010, the disputing parties seeking to redress their dispute in a consultative process can have direct access to the labour courts, irrespective of the conciliation proceedings or the negotiated outcome of a conciliation conference. This amendment allows the disputing parties to resolve their case in a labour court. In the wake of the growing popularity of Alternative Dispute Resolution (ADR), this question allows an exploration into the effectiveness of state

mediated dispute resolution mechanisms when they are binding and when they are not. In this chapter, the relevance of conciliation methods in the resolution of labour disputes will be studied. Furthermore, it will also undertake an empirical assessment of the impact of mandatory and non-mandatory conciliation processes on the negotiated settlement and on the dispute resolution time. This chapter uses a newly obtained micro dataset on labour disputes from two *Central Government Cum Industrial Tribunals* (CGIT's) in India namely, the Mumbai CGIT and New Delhi CGIT for the period between 2008 and 2011. The empirical strategy applied in this chapter allow the separation of the impact of the mandatory conciliation process on the negotiated settlement and disposition time when compared to the non-mandatory conciliation process using the three main variables namely– a) total case disposition time, b) differences in outcomes achieved by workers, and finally, c) the final payments received by workers.

The third research question is: *Do the changes in equal inheritance property rights in favour of women improve their educational attainments and the labour force participation?* Answering this question involves the analysis of non-labour market institutions and their impact on the bargaining power within a household. This study is an example of how legal changes regulating a subsection of the society (the family) can have far reaching consequences on another subsection of society (the labour market). In 2005, India witnessed a major constitutional amendment to the very old Hindu Succession Act of 1956 (hereafter HSA), giving women a legal claim to inherit their parents ancestral bequest, dwellings and agricultural land on a par with men. This law applies to the ancestral property of a Hindu undivided family, and does not apply to the other property acquired by the parents. This law governs the inheritance rights of four religious communities namely- Hindus, Buddhists, Jains and Sikhs; it does not extend to other religious communities such as Muslims, Christians, Parsis and Jews. Prior to the 2005 amendment, five states of India had amended this Act to eliminate the gender inequality in inheritance and make it in a favour of women. The first attempts to amend this law came from the state of Kerala in 1976, followed by Andhra Pradesh in 1986, the state of Tamil Nadu in 1989, and finally by the state of Maharashtra and Karnataka in 1994 respectively. This change has larger implications in the Indian context for raising the socio-economic status of women, and particularly improving their bargaining positions relative to men, within the household. This study used the exogenous variations created by a legislative change in India's inheritance laws in favour of women and examined

the effects of equal inheritance property rights of women on their labour supply and education levels by comparing the observed outcome between the reform and non-reform states.

From the foregoing discussion, it follows that the present study aims to explore the impact of labour and non-labour market institutions on the observed labour market outcomes by using insights from labour law and economics and development economics. It does not therefore, endeavour to articulate definite conclusions about the potential impact of specific legal rules, but rather it strives to generalise the conclusion drawn from the Indian labour market to other developing countries, which are markedly different than the developed countries.

1.4. Methodology:

To address the aforesaid research questions, the study adopts a multifaceted empirical approach largely drawn from the discipline of empirical legal studies and based on the positive analysis (analytical approach) as commonly used in labour economics. This study is carried out in the context of India to analyse the impact of labour and non-labour market institutions on the labour market outcomes. This study has three specific research questions. The legal provisions concerning labour markets are discussed and the different empirical approaches have been used to study them. Existing studies that have assessed the impact of institutions on the labour market tend to overlook the role of the specificity of legal provisions which trigger the conclusion. To overcome this limitation, the legal context for each research question is discussed in great detail and an attempt has been made to identify an appropriate empirical identification strategy for further investigation. The study uses a theoretical premise, mostly drawn from the discipline of labour law and economics and formulates its research hypothesis for the empirical test.

To analyse the first research question, the study uses the EPL measure which corresponds with the Labour Regulation Index constructed in a study by Besley and Burgess (2004). It is based on the state-level amendments to the Industrial Dispute Act of 1947 for the period between 1958 and 1992 and later. It was in the process of being updated until 2008. This index captures the inter-state variations in labour regulation over time. The index on labour regulation along with the index on enforcement intensity measured in terms of the number of labour inspectors per one thousand workers will be used to explore the variation in EPL and enforcement intensity across thirty one Indian states for the period 2000-2007. The study applied the Panel Data Methods (Fixed Effects Model) to estimate the impact of EPL and the enforcement intensity and their differential impacts on the incidence of temporary contract

workers. Empirical methods generally witnessed the problem of endogeneity, which in this chapter has been addressed using the instrumental variable approach

To study the second research question, the study undertook a special effort to collect the dataset on labour conflicts using the Right to Information Act, 2005 from the Central Government Industrial Tribunal-cum-Labour Courts (CGIT's). This study formulated the research hypothesis based on the theory of alternative dispute resolution from law and economics. Further, the database was obtained from the two CGIT's namely, Mumbai and New Delhi to test the proposed hypothesis. Using the Ordinary Least Square (OLS) method, this chapter examines the impact of mandatory and non-mandatory conciliation mechanisms on the negotiated settlement and dispute resolution time.

To address the third research question, the study uses the intra-household bargaining model that considers whatever improvement in inheritance laws in favour of women would be likely to bring out a drastic change in the value of existing social relationships, and thus potentially would change the relative bargaining power within the household. Using the restrictive sample population, the study employs the Difference-in-Difference (DID) estimation strategy to measure the impact of inheritance property law reforms on human capital accumulation (measured in terms of the average years of schooling), and the female labour supply (measured in the months for the previous employment) for the reformed and non-reformed Indian states.

Although there are interconnections between the chapters, they can be read independently, each addressing the specific issues. Broadly speaking, the contents of this dissertation are best viewed as an empirical exercise exploring how India's specific labour laws and personal laws such as inheritance property rights, interact with the Indian labour market. In addition it examines how such interactions are receptive to advance our scholarship to understand the relationship between the labour market and labour market institutions in the present context. The study takes into account the development of literature in law, labour economics, development economics, and law and economics scholarships, until the 31st of March, 2016. Any significant development after this period is not taken into consideration.

1.5. Relevance of the study:

This study provides a fresh perspective on how particular labour laws and their imperfect enforcements vary across the different types of workers and within the different sectors. Another topic which will be discussed in the following chapter is the role of the state mediated labour dispute resolution mechanism. Generally, the state mediated dispute resolution mechanism in many developing countries including India, is a preferred way to resolve problems, rather than to settle them in private negotiations due to the lower bargaining power of trade unions as compared to employers. This study will assess the effectiveness of the conciliation mechanism and will provide the empirical evidence on the impact of mandatory and non-mandatory conciliation mechanisms. This analysis supports the arguments to strengthen the alternative dispute resolution mechanism relative to the traditional adjudication method to resolve labour disputes in the developing countries. As mentioned above, any direct legal intervention in labour markets is generally perceived to be bad for economic performance. In the final analysis, the study will present a case where legal intervention through the positive changes in inheritance rights for women will significantly improve their bargaining power and the labour force participation rates. These findings highlight that to bring in the important changes the market might require legal changes of laws which at the surface have no connection with the market. The learning drawn from this dissertation is of importance for a societal perspective as it enables the assessment of legal institutions in the developing countries' labour markets that single out the strengths of lessons learnt from theoretical and empirical models of developed countries. The study will be beneficial to a host of law and economics scholars, labour lawyers and development economists. Moreover, this will enhance the quality of a discussion like this, on the functioning of labour markets in developing countries and indicate the lines along with which the labour law reforms could be envisaged in the long run.

From a scientific viewpoint, the study employs contemporary empirical methods to address the research questions with respect to the functioning of legal institutions in the labour markets. The literature related to law and economics is enriched by providing the robust empirical assessments. Furthermore, it opens up the possibility of using insights from development economics and labour economics to enrich the current understanding of the impact of labour laws and regulations in the context of developing countries in general, and India in particular.

1.6. Thesis Outline:

Chapter One starts with questions that are raised in the context of developed countries and identifies the needs to address them in the context of the Indian labour market. Next, it identifies the types of labour and non-labour market institutions which have been studied in the larger context. It then discusses their relevance in our context. In line with the main objective of the thesis, this chapter discusses the role of labour market institutions such as Employment Protection Law and Dispute Resolution Mechanism and their plausible effects on the labour market outcomes. Secondly, it discusses the changes in property rights laws and analyses how these changes have had a direct impact on the labour market through its influence on the female labour supply. Thus, this chapter raises three research questions in the context of the Indian labour market, which has witnessed a significant change in labour laws and policy to promote a business friendly economic environment. Subsequently, it will provide an overview of the Indian legal contexts and will review the arguments and evidence surrounding the impact of labour market institutions. Finally, this chapter outlines the methodological approaches and scientific relevance of the present thesis.

Chapter Two will investigate the impact of EPL and its variable enforcement intensity on the growth in the number of temporary contract workers in the organised manufacturing sector. The analysis begins by studying the global trend in the rise in the number of temporary contract workers as compared to regular workers. It then reviews and examines the arguments surrounding the role of strict EPL and its variable enforcement intensities on the labour market outcomes. The chapter aims to study whether the impact of strict EPL varies with different enforcement intensities in the organised manufacturing sector of Indian states. This chapter hypothesizes that the firing and compliance costs as mandated by the strict EPL, factor into forward-looking employment decisions of the firm. If the strict EPL, that protects the rights of regular workers and enforcement of those legal rights, is perfectly complied with, then it is possible for firms to circumvent those laws. They would do so by reducing the demand for regular workers and by increasing the demand for temporary contract workers since the latter category of workers are exempted from the legal compliance. In this context, we expect that firms located in strict EPL states and faced with high enforcement intensity, are likely to experience a higher incidence of temporary contract workers compared to the firms located in less strict EPL states and facing low enforcement intensity.

In **Chapter Three**, another notable labour market institution- Dispute Resolution Mechanism will be examined in detail. This chapter aims to study the relevance of the conciliation method in the resolution of labour disputes and to empirically assess the impact of mandatory and non-mandatory conciliation processes on the negotiated settlement and the dispute resolution time. Traditionally, the labour conflicts are resolved in a multi-tier dispute resolution mechanism. This mechanism begins with a consultative process wherein, disputing parties with assistance from a third neutral person bargain to settle their claims. However, if the bargaining process does not converge into the desired settlement outcome as a last resort, disputing parties may proceed to litigation in the labour court. A former mechanism is also referred to as Alternative Dispute Resolution (ADR) and consists of mediation, conciliation and an arbitration procedure, that is, the process does not involve going to the labour court and is less expensive compared to other methods; whereas the latter involves a formal adjudication in a labour court or a tribunal with excessive costs as compared to conciliatory and mediation methods. In the context of developing countries like India, this chapter provides strong empirical evidence to strengthen the policy measures for conciliation mechanisms to resolve labour conflicts and discusses its social welfare benefits.

Chapter Four examines the economic impact of non-labour market institutions, namely, the equal inheritance property law reforms in India, on the female labour force participation and their educational attainments. As is well known, in numerous countries across the developing world, women rarely hold secure rights to property, which can provide them with physical safety, psychological security as well as incentives to participate in paid economic activities. The denial of women's rights to property takes the form of a systemic gender bias in inheritance laws and laws restricting women's mobility, which are nonetheless the only two sources women can have at their disposal to improve their economic security. It is widely acknowledged that inheritance laws are the principal legal instrument that grant women access to family wealth and are an important determinant of an individual's incentives for wealth creation, social mobility and access to labour market opportunities. Legal reforms that are aimed to reduce accumulative gender discrimination coexist with the convoluted interaction of customary norms and statutory laws. Hence, the effectiveness of these reforms has been widely disputed, and the vast literature including qualitative studies documents the discriminatory practices against women. Against this backdrop, the study will look at the economic effects of a constitutional amendment to the Hindu Succession Act of 1956 giving women a legal claim to inherit their parents' ancestral bequest, dwellings and agricultural land

on their labour force participation rate and education attainments. This chapter argues that, changes in inheritance property rights for women are likely to change their bargaining power and improve their autonomy within the household. Here, the assumption is that the equal inheritance property rights alter women's bargaining power, and allow them to steer allocations in their preferred channels i.e., their decision to participate in the market and their education outcomes. To evaluate the potential effect of changes in inheritance rights, the identification strategy relies on a D-I-D to estimate the impact of reform. The causal inferences are drawn from the empirical analysis by comparing the mean educational attainment, and the female labour force participation between the reform and non-reform states, as well as between younger and older women. Treatment was assigned to younger cohorts in the reform states, and the observed outcomes were compared with the older cohorts in the reform and non-reform states. The chapter concludes that women in states where the reforms were implemented experienced positive effects on their employment and educational attainments. These positive effects have also been observed in their daughters' educational attainments.

Finally, **Chapter Five** summarizes the findings, provides some concluding remarks and identifies avenues for future research.

Chapter Two

Labour Law, Enforcement and the Rise of Temporary Contract Workers: Empirical Evidence from India's Organised Manufacturing Sector²

2.1. Introduction:

The effect of Employment Protection Legislation (EPL) on the growth in the number of temporary contract workers in developing countries is widely debated in the recent labour economics literature. For the past two decades, the share of temporary contract workers compared to regular workers has increased rapidly (ILO 2012). A segment of temporary contract workers mainly consists of those who are recruited by firms through third party contractors or temporary work agencies, and who lack the security of definite tenure as well as the basic employment protection. Temporary contract workers not only constitute a significant share of the labour market in the developing countries, but their share has also seen a substantial rise in many developed countries³.

At a micro level, this growth has been closely associated with an attempt to increase labour market flexibility, in other words an employment adjustment technique for the management of demand of labour flexibly (OECD 2014). In the absence of this flexibility, labour markets in many developing economies are likely to experience high levels of unemployment. Firms in the developing countries tend to depend excessively on temporary contract workers as it enables them to adapt to the fluctuations in the business cycles. Thus, this growth has generally been perceived as a positive development in the labour market. On the other hand, this positive development has its own drawbacks. A growth in their share is coupled with poor working conditions, low productivity and lack of social cohesion with

2. Note-This chapter was published as a journal article in the European Journal of Law and Economics with the same title, "Labour law, enforcement and the rise of temporary contract workers: empirical evidence from India's organised manufacturing sector", online on 14th September, 2015 (doi: 10.1007/s10657-015-9514-z).

3. The share of temporary and short term contractual workers has been increasing in many OECD countries over the past few decades. According to the OECD Employment Outlook report (2010), it has increased four times in the Scandinavian countries and has almost doubled in other European countries. This segment, however, employed 6.8 percent point of the European Union working population in 2006. In the United States and the Japanese labour markets, the same segment covers 6.2 and 4.9 percent point of the total workforce respectively (Heinrich et al. 2008).

regular workers (World Bank 2012). This suggests that the demand for temporary contract workers to adjust firms' workforce is actually making them a more vulnerable workforce, if they are not covered under the employment protection laws. And therefore, it is likely that the supply and demand factors could have influenced the growth of temporary contract workers.

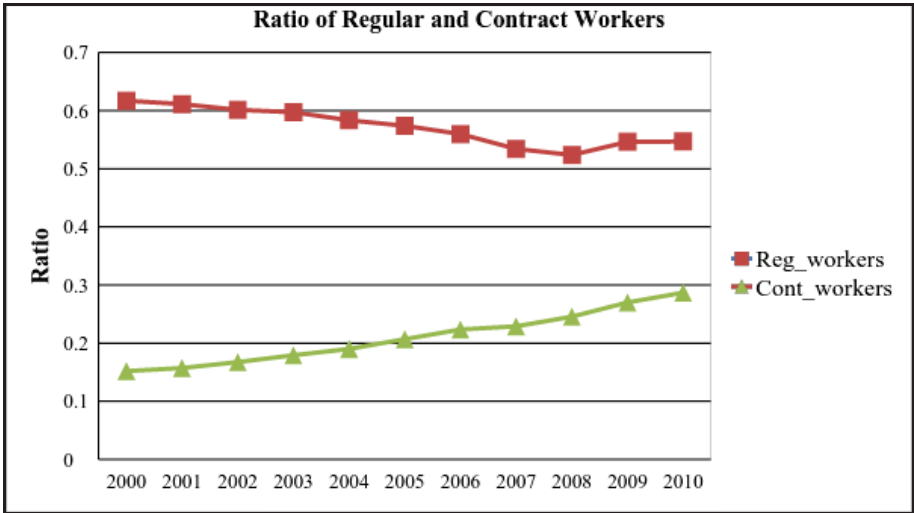
Earlier studies argue that the growth in number of temporary contract workers is triggered by the stringent EPL, in particular, strict dismissal laws that increase the adjustment costs of regular workers and discourages firms from adjusting their workforce in the presence of adverse economic conditions (Boeri and Jimeno 2005; Cahuc and Postel-Vinay 2002; Booth et al. 2002). According to these studies, a higher level of firing costs of regular workers also increases the compliance costs of overall labour regulation and offers less flexibility to firms to balance the workforce in response to product market competition. As a result, when faced with strict EPL, firms are likely to avoid the burden of adjustment costs and overall compliance costs of labour regulations through employing temporary contract workers.

This large body of literature has two main features. First, it mostly focuses on the developed countries where labour regulations are more efficiently enforced (Botero et al. 2004; Schneider and Enste 2000). Second, most of these studies have overlooked the role of the imperfect nature of enforcement while analyzing the effects of EPL (Almeida and Poole 2013; Deakin et al. 2007). Much of the empirical literature has been extended to analyse both the impact of strict EPL on the firm's demand for temporary contract workers where strict compliance with labour regulation was implicitly assumed (Pierre and Scarpetta 2013; Cuesta and Martin 2009; Autor 2003), and the impact of enforcement intensity on compliance with labour regulation that constrains the demand for temporary contract workers (Almeida and Carneiro 2012; Ronconi 2010; Di Tella and MacCulloch 2005). However, none of the studies have looked at a case of labour markets in developing countries where there is weak compliance with labour laws, and the de facto level of regulation is lower than the de jure level (Feldmann 2009; Djankov and Ramalho 2009).

Given this context, this chapter aims to estimate the joint effects of EPL and variable enforcement intensity on the growth in the number of temporary contract workers in the organised (formal) Indian labour market. In particular, it examines whether firms located in a stricter EPL regime hire differentially more temporary contract workers in response to variable enforcement intensity. India provides an ideal setting to study the growth in the number of temporary contract workers in the organised labour market. India has highly

restrictive employment protection laws but its enforcement is very poor. In India, the share of temporary contract workers has increased from a 10 percent point to a 27 percent point; the share of regular workers has decreased from 68 percent point to 54 percent point for the period 1995–2010 respectively (Fig. 2.1). The Industrial Dispute Act of 1947 (hereafter IDA, 1947) sets out the regulations governing employer-worker relations and covers various aspects such as the resolution of labour disputes, hiring and firing workers, closure of establishments, retrenchment, strikes and lockouts. This act covers regular workers who are directly employed in the formal sector, through long-term contracts, and are largely represented by the trade unions. However, temporary contract workers are exempted from the application of severance payment, mandatory notice or retrenchment authorisation from the state (Rajeev 2010; Deshpande et al. 2004). Such exceptions from the legal compliance incentivise employers to hire an increasing number of contract workers due to the flexibility in the formal labour market (see Fig. 2.2).

Figure 2.1: Ratio of regular and temporary contract workers



Source: Annual Survey of Industries, various years.

The theoretical premise for an empirical analysis is derived from a simple model of dynamic labour demand developed by Adhvaryu et al. (2013) and Bertola (1990). According to the theoretical model, firing and compliance costs as mandated by the strict EPL, factor into forward-looking employment decisions of the firm. If EPL that protects the rights of regular workers and the enforcement of those legal rights is strictly complied with, it is possible for

firms to circumvent those laws. They would do so by reducing the demand for regular workers and increasing the demand for temporary contract workers since the latter are exempted from legal compliance. In this context, it is expected that firms located in strict EPL states and faced with high enforcement intensity are likely to experience higher incidence of temporary contract workers compared to firms located in less strict EPL states and facing low enforcement intensity.

For an empirical analysis, this chapter uses the dataset of the Annual Survey of Industries to compute the share of temporary contract workers. Next, it explores variations in EPL and enforcement intensity measures across thirty-one Indian states for the period 2000–2007. The results suggest that the average effect of strict EPL and high enforcement intensity on the growth in size of temporary contract workers is positive and statistically significant across Indian states. The average effect is stronger for enforcement intensity than EPL. This implies that strongly enforced legal rights for regular workers increase the demand for temporary contract workers relative to strict EPL. Second, compared to firms in more flexible labour regimes, those in an increasingly restrictive labour regime hire differentially a higher number of temporary contract workers in response to variable enforcement intensities. And finally, the study reports that the demand for temporary contract workers is rising in almost all labour intensive industries but the magnitude of the growth is slightly higher in inflexible states compared to flexible states.

Figure 2.2: Share of temporary contract workers across different labour regimes



Source: Annual Survey of Industries, various years.

The topic discussed here is important for two reasons: first, it adds to the growing literature on labour laws and economics and provides empirical evidence on how labour regulation, as stipulated in the national legislation and its variable enforcements, generates incentives to use temporary contract workers. Second, in the context of India, labour regulation is criticised for being restrictive, since its strict enforcement may create obstacles to economic activity. Due to variations in EPL and enforcement intensity across Indian states, some firms may be more affected than others; thus, the present study provides a better understanding of this complex interplay of institutions which is crucial for allocative efficiency in the labour market.

The chapter is organised as follows: Section 2.2 provides a snapshot of previous studies; Section 2.3 provides an overview of labour regulation and enforcement climate; Section 2.4 describes the dataset and variables; Section 2.5 looks at identification strategy and summary statistics; Section 2.6 reports empirical results and robustness checks and finally, Section 2.7 provides the conclusion.

2.2. Review of Previous studies:

The evolution and persistence of temporary contract workers and the effects on the formal labour markets has already been a subject of immense policy debate in countries with different regulatory frameworks and labour market conditions. The introductory section provides an overview of some studies that have used different labour regulatory frameworks to study the factors responsible for the rise in the share of temporary contract workers. The regulatory framework implicitly assumed that the labour regulation is perfectly complied with. However, it may be correct in the context of developed countries but may not be true in the case of a developing country like India.

This section provides an overview of some landmark studies that have analysed the impact of different regulatory frameworks and labour market conditions on the rise in the use of temporary contract workers. The US (United States) labour market is widely recognised as one of the most flexible in the world. According to Autor (2003), the rise in a number of temporary contract workers in the US is causally related to the adoption of one class of exception by the US courts (i.e., an exception clause to legal doctrine of employment-at-will)—the implied contract right to ongoing employment by forty-six member states. On the contrary, Kalleberg (2011) considers macro factors such as declining labour market regulation and oversight; diminished union power and global capital in part responsible for the growth of temporary workers in the US economy. In the British labour market, the same growth is attributed to the European Commission (EC) directive that is being promulgated to prevent discrimination against temporary workers and extension of employment protection to protect the legal rights of temporary contract workers (Forde and Slater 2005). In the context of Germany, Antoni and Jahn (2009) examine the impact of the amendment reforming the Labour Placement Act of Germany in the period of liberalisation that has significantly increased the average employment duration of temporary workers. In response to persistent high unemployment faced since the early 1980s, many European countries have adopted widely varying labour policies concerning employment protection. Among them, the national policy instrument was directed towards the possibility of hiring temporary workers on flexible, fixed-duration contracts, aimed at encouraging job creation (see Cahuc and Postel-Vinay 2002; Booth et al. 2002).

In the Indian case, to begin with, the most influential study by Besley and Burgess (2004) examined the economic effects of two Central government level amendments (1976 and 1984)

to the chapter VB of IDA, 1947 on the employment outcome. The labour regulation index constructed by Besley and Burgess (2004) (henceforth the BB index) has further been used by Aghion et al. (2008) to assess the effect of the entry regulation (The Licence Raj); by Hasan et al. (2007) to analyse the effect of trade reforms on labour demand elasticity; by Adhvaryu et al. (2013) to examine the sensitivity of industrial employment to local demand shocks; and finally by Sanyal and Menon (2005) to analyse the impact of labour regulation on firms' decision on the plant location and investment. Dougherty (2009) using the Organization for Economic Co-operation and Development (OECD) index on labour regulation argues that states with flexible labour laws, and plants in labour-intensive industries, experienced a fourteen percent improvement in total factor productivity compared to their counterparts.

Using the same index, Golder and Aggarwal (2012) examined the determinants of informalisation of organised workforce by focusing on import competition and labour market rigidities. They report that in the post-liberalisation period, import competition was responsible for creating an increasing number of casual jobs, temporary contract jobs compared to regular jobs, for workers with above primary level education. Ahsan and Page (2009) depart from the earlier analyses of labour regulation indices, which capture specific provisions on hiring and firing restrictions. In the paper, they assess the effects of two cost components that could lead to labour market rigidities: first, the hiring and firing costs incurred by the employer while responding to global competition; second, the cost of resolving labour disputes that could otherwise have an effect on the employer's size. The study suggests that states with inflexible labour laws and costly dispute resolution mechanisms experienced lower levels of output and employment growth than states with flexible labour laws and less costly dispute resolution mechanisms.

Fagermaes (2010) provides a new direction to the present debate. Her paper analyses the effect of labour dispute legislation, and dispute settlement process (as a proxy index for the enforcement mechanism), on the formal-informal employment divide in India. The study concludes that the relationship between judicial efficiency (as captured by constructing an indicator of Court efficiency), and formal employment is weak. Recently, Soundararajan (2013) examines the impact of minimum wage legislation and enforcement intensities in the Central government sphere (a similar measure used in this study) on wages and employment among low wage construction workers in India. An extensive survey of literature, on the Indian labour market, confirms that the labour regulation climate indeed has a significant negative impact on the economic growth and employment level. One aspect which has been

overlooked in these studies (except two -Fagernas (2010) and Soundararajan (2013)), but has relevant policy implications, is the variations in labour regulation and enforcement intensity and their joint effects on the growth in the number of temporary contract workers in the Indian manufacturing sector.

2.3. Labour regulation and enforcement climate:

2.3.1. Labour regulation in India:

Under Article 246 of the Constitution of India, labour is a subject in the Concurrent List. India is a federal democracy wherein the Central (Union) and State governments are competent to enact legislations. Due to joint jurisdictions, a large number of labour laws have been enacted to cater to different aspects of labour regulation. The central and state governments have powers to formulate rules to facilitate the implementation of these laws. The industrial relation system is mainly governed by the Trade Union Act, 1926⁴, the Industrial Dispute Act, 1947, the Industrial Employment (Standing Order) Act, 1946⁵ and finally, the Contract Labour Act, 1970⁶. These laws are mostly applicable to firms in the formal sector, and the execution of labour laws varies greatly across Indian states. Among several legislations, the IDA deserves special attention in this paper. The main objective of the Act is to govern industrial dispute resolution procedures, and provide employment protection in case of unjust retrenchment, layoffs and lockouts. The IDA applies to a variety of

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4. The Trade Union Act of 1926 deals with the formation, and registration of trade unions by employers for the purpose of collective bargaining. Under this Act, trade union organizations are legally sanctioned and collective bargaining (at least nominally), strikes, and lockouts are regulated.
 5. The Industrial Employment (Standing Order) Act, 1946 provides rules and regulations governing the general terms and conditions of employment between the employee and the employer. Under this Act, the employer and the employee must agree on a set of rules and regulations governing the contractual employer/employee relationship. This Act provides income and job security to workers and safeguards the interest of both parties in case of a breach of the employment contract.
 6. The Contract Labour Act, 1970 was brought into effect to regulate the employment of contract labourers in certain establishments, and to provide for its abolition in certain circumstances. A contract labourer is defined in the Act as “one who is hired in connection with the work of an establishment by a principal employer (the firm) or through a contractor”. The Act makes certain provisions for the welfare of contract workers as a whole including payment of minimum wages, certain health and sanitation facilities on the work premises, provident fund benefits and so on. However, it has been observed in many field studies that this Act is completely overlooked by principal firms and contractors, and the legal rights of contract workers are poorly enforced. Due to the lack of collective bargaining and legal protection from labour laws, contract workers continue to face vulnerable work conditions and poor welfare (Shyam Sunder 2011).

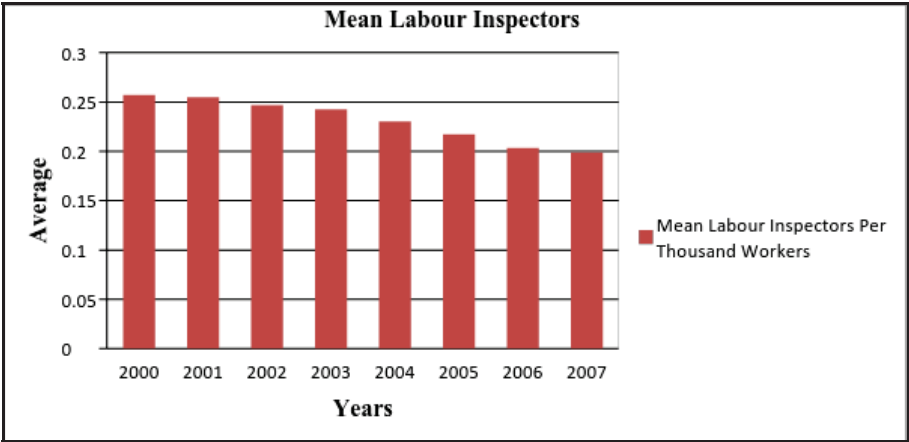
establishments and industries in India. The terms ‘industrial establishment’ or ‘industries’ are used in the widest possible sense. It brings together almost all economic activities within the ambit of the Act, and is most widely applied in the Indian organised sector. It also establishes a three-tier dispute resolution mechanism comprising conciliation, arbitration, and compulsory adjudication of labour disputes. In the IDA, the regular workers’ layoffs and retrenchments are covered under Sections V-A and V-B respectively. Section V-A lays down regulations for establishments with 50 or more workers. For example, a retrenched worker is entitled to compensation equal to 15 days’ average pay for each year of service and for layoffs; every worker is paid fifty percent of basic wages and a cost allowance for each day that they are laid off (maximum of 45 days). Regulations in Section V-B cover all establishments with 100 or more workers. This section is more stringent and requires firms to obtain government permission to layoff or retrench a single worker. The closing down of establishments requires 60 days (Section V-A) or ninety days (Section V-B) of prior notification to the government. Thus, both these sections of the IDA increase the costs of firing and compliance with the labour regulations. According to the IDA, contract workers are exempted from the application of severance payment, mandatory notice, or retrenchment authorisation. This creates an incentive for the employer to hire temporary contract workers differentially relative to the regular workers. Firms are free to hire and fire contract workers as market conditions change, without being subjected to the provisions of the IDA. (Rajeev 2010; Deshpande et al. 2004) observed that in many Indian states, a large number of temporary contract workers are being employed in work of a perennial nature, and it is mostly being done by regular workers. Moreover, they are being paid almost 45 percent lower wages than the regular workers (Bhandari and Heshmati 2008). Therefore, excessive reliance on temporary contract workers has become a prominent feature of the Indian organised sector.

2.3.2. Enforcement Mechanism:

India’s employment protection legislation dovetails job, income security, and collective bargaining to regular workers in the organised sector. However, their effectiveness relies on how well the legislations is enforced. The present industrial relations system allows each state to amend and execute all labour regulations prescribed by the central government. There are forty-five central government labour regulations (on which states can make further amendments), and in addition, hundreds of state level laws (Debroy 1997). This leads to a profusion of labour legislations, especially across states, and makes enforcement increasingly burdensome. Enforcement of labour regulations is decentralised at the level of states. At the

state level, the enforcement capacity is low due to poor human resource capability and lack of financial resources in the state labour departments. The industrial relations system is designed in a way that every Labour Inspector, Commissioner and Zone-officer, working under state jurisdiction, is responsible for enforcing multiple laws. Consequently, there is a gap between the number of labour inspectors available for inspection and their demand in enforcing these myriad acts. Since the 1990s, there has been an overall decline in the total number of labour inspectors as well as factory inspections at the state level. In this paper, the enforcement intensity measured in terms of human capacity is the number of labour inspectors per one thousand workers. The mean number of labour inspectors is 0.23 for one thousand workers across states. In the year 2000, the average number of labour inspectors was 0.25. This further declined to 0.19 in 2007 (Figs. 2.3 and 2.4). In the central sphere for minimum wage legislation, the mean number of labour inspectors declined from 6.51 in 2000 to 4.17 in 2010 for ten thousand workers in the scheduled industries (Soundararajan 2013).

Figure 2.3: Average number of labour inspectors (state sphere)

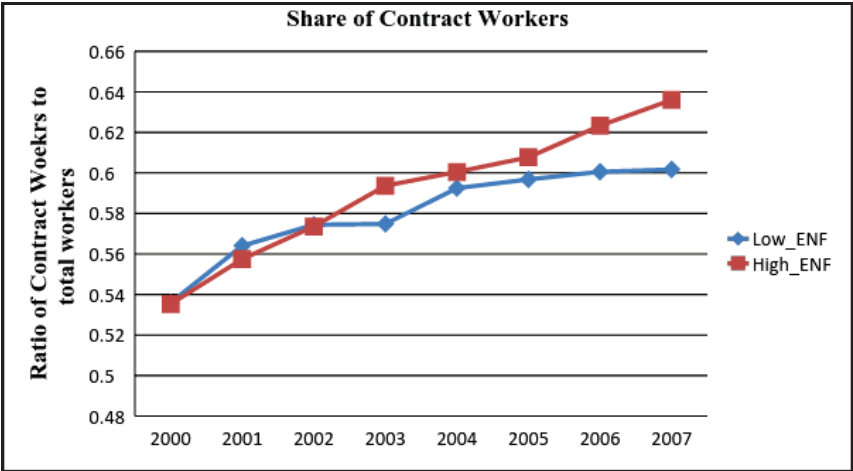


Source: Pocket book of Labour Statistics, various years

This decline is partially associated with a paucity of government spending on the labour department personnel (Shyam Sunder 2007), and partly due to the growing incidence of collusive agreements (e.g. a bribe) between employers and inspectors, the latter turning a blind eye to the noncompliance of laws (Basu et al. 2010; Rajeev 2010). Other institutional changes were adopted (adoption of ‘New Industrial Policy’) to curtail the power of the labour inspection system to attract Foreign Direct Investment and promote a business friendly environment. This change, however, exempts certain types of firms from inspections (such as firms located in Special Economic Zones

(SEZs), small and medium size industries, and firms registered under the shops and establishment acts) and they are also allowed to self-certify compliance. As a result, heterogeneity in enforcement intensity at state level is primarily driven by the state’s economic policy, changes in institutional configurations, and their pursuit for Foreign Direct Investment (Soundararajan 2013)

Figure2 4: Incidence of contract workers by enforcement intensities



Source: Author’s own calculation.

2.4. Data description:

This chapter combines different data-sources: (1) Data on contract workers, value added and industry characteristics, (2) Data on labour regulation, (3) Data on Enforcement intensity, and (4) Data on state level indicators. The primary data source for this study is obtained from the Annual Survey of Industries (ASI) conducted by the Ministry of Statistics and Programme Implementation of the Government of India. It is a state-industry level aggregate cross-sectional dataset on total output, value added, profit, employment (both regular and contract workers), capital stock, wages and so on, at the three-digit National Industrial Classification (NIC) industry level, and at the state level for the period 2000–2007. The ASI extends to the entire country. It covers all factories registered under Sections 2m(i) and 2m(ii) of the Factories Act, 1948, i.e., those factories that employ ten or more workers and use power; and those that employ twenty or more workers, without using power respectively. Our state-industry panel dataset contains data on twenty-five states and six union territories (UT’s) for almost sixty-four three digit industries. Data on the labour regulation index is drawn from the study by Besley and Burgess (2004). It is based on state-level amendments to the IDA for the

period 1958–1992. This index captures the inter-state variation in labour regulation over time. The index on labour regulation takes values as follows: if there is no amendment, it scores ‘0’; if the amendment is pro-worker, it takes the value of ‘1’; and finally, if the amendment is pro-employer then the score is ‘-1’. A pro-worker (pro-employer) amendment was one that decreased (increased) a firm’s flexibility in hiring and firing of workers while a neutral amendment left it unchanged. The BB index codes a direction of change if there are multiple amendments in a given year for each state. The cumulated sum of these scores in all previous years would determine the state’s labour regime in a particular year. The BB index on the composite labour regulation ends in 1992. This chapter reviewed the IDA, 1947 in a recent edition of Malik (2009) and collected almost nine state amendments that were enacted after 1992—these are included in the appendix section of this paper. The BB index and its coding procedure was heavily criticised (Bhattacharjea 2006). However, in two later studies, such criticism has been used to correct the index (Ahsan and Page’s 2009; Gupta et al. 2009). Following Besley and Burgess (2004), and Gupta et al. (2009), this paper follows the method of cumulating the BB scores to categorise the states in three categories: pro-worker, pro-employer and neutral for each year. Based upon a revised measure, six states are classified as pro-employer (flexible states) viz. Andhra Pradesh, Karnataka, Uttar Pradesh, Rajasthan, Gujarat and Tamil Nadu. Another fourteen states are classified as pro-worker states (inflexible states): Assam, Bihar, Jharkhand, Delhi (UT), Goa, Haryana, Himachal Pradesh, Madhya Pradesh, Chhattisgarh, Maharashtra, Orissa, Punjab, Kerala and West Bengal. The remaining eleven states are classified as neutral states: Chandigarh (UT), Dadara Nagar Haveli (UT), Jammu & Kashmir, Manipur, Meghalaya, Nagaland, Pondicherry (UT), Tripura, Daman and Diu (UT), Uttaranchal, and Andaman and Nicobar (UT) (see Appendix A).

In this chapter, the enforcement intensity is measured in terms of human capacity: number of labour inspectors per one thousand workers. The data on the enforcement intensity corresponding to Annual Survey of Industry years are obtained from the appendix sections of Pocket book of Labour Statistics published by the Labour Bureau, Ministry of Labour and Employment of Government of India. To analyse the responsiveness of strict EPL, with variable enforcement intensity, we have categorised the enforcement intensity measure in two sub-indexes: high enforcement intensity, and low enforcement intensity at a state level (see Appendix-I). If the mean number of labour inspectors for a given state is higher than the overall mean value (0.23) of labour inspectors in the sample, then the state is referred to as having high enforcement intensity. For instance, the state of West Bengal has on an average

0.45 labour inspectors for one thousand workers making it a case of a state with a high enforcement intensity. In a similar vein, if the mean number of labour inspectors is lower than the overall sample mean of labour inspectors, then that particular state has been classified as low enforcement intensity. For instance, the state of Karnataka has on an average 0.19 labour inspectors, much less than the sample mean on enforcement intensity. Finally, the data on control variables comes from the statistical abstracts of Indian states, various reports on Economic Survey, and the Annual Survey of Industries. The following control variables at the state level are used: per capita state domestic product, per capita road lengths, per capita electricity consumption, and per capita state development expenditure.

2.5. Identification strategy and summary statistics

In this section, the study discusses the empirical methodology that examines whether firms located in stricter EPL states hire differentially more temporary contract workers in response to variable enforcement intensity. The identification strategy is closely related to Adhvaryu et al. (2013) who use state-industry and district level data to find that total employment in states/districts with more flexible labour regimes is more responsive to demand shocks. Exploiting variation in EPL and enforcement intensity, we first measure the impact of EPL and enforcement intensity on our dependent variable: the log ratio of contract workers to total workers at the state-industry level for the period 2000–2007.

At the aggregate level, the base regression specification is thus:

$$Y_{i,s,t} = \alpha_i + \alpha_s + \alpha_t + \beta_1(EPL_{s,t}) + \beta_2(ENFORCE_{s,t}) + \beta_3(EPL_{s,t} * ENFORCE_{s,t}) + \delta_{s,t} + \epsilon_{s,t} + \dots (1)$$

$(Y_{i,s,t})$ represents the log ratio of contract workers to total workers for industry (i), state(s) at time (t). The base regression equation (1) controls for macro shocks with industry fixed effects (α_j), state fixed effects (α_s) and for time-invariant state-industry variation with year fixed effects (α_t). Industry specific fixed effects take into account the macro shocks resulting from the product market competition. The state-specific fixed effects capture factors such as demography, culture and natural endowments. The year-specific fixed effects capture year-specific factors such as common shocks of industrial unrest, and amendments in the workfare programme etc. The coefficient of interests (β_1) and (β_2) estimate the average effect of EPL and enforcement intensity on state-industry level outcomes ($Y_{i,s,t}$). As mentioned in the previous section, the measure on EPL is computed as a cumulative sum of state-level amendments to the IDA. Enforcement intensity is measured in terms of total number of labour

inspectors for one thousand workers for each state over years. In addition, the study also adds another coefficient of interest (β_3) to the baseline specification that estimates the interactive effect of EPL and enforcement on the share of contract workers. ($\delta_{s,t}$) is the time varying and state-specific vector of control variables. ($\epsilon_{s,t}$) represents the idiosyncratic error term. The specification clusters standard errors at the level of state to deal with concerns of serial correlation (Bertrand et al. 2004).

At a disaggregate level, the study estimates how firms' demand for temporary contract workers varies across states with different labour regulations as well as with different levels of enforcement intensities by adding interaction dummies.

$$Y_{i,s,t} = \alpha_i + \alpha_s + \alpha_t + \beta_1(EPL_{s,t}) + \beta_2(ENFORCE_{s,t}) + \beta_3(INFLEX-EPL_{s,t} * HIGH-ENFORCE_{s,t}) + \beta_4(FLEX-EPL_{s,t} * LOW-ENFORCE_{s,t}) + \delta_{s,t} + \epsilon_{s,t} \dots \dots \dots (2)$$

In equation (2), the index on EPL is classified as either pro-worker (+1), pro-employer (-1) and neutral (0), depending on the cumulative score of IDA for each state. Enforcement intensity is classified as high (+1) and low (-1) enforcement intensity, depending on the mean number of labour inspectors across states. Hence, (β_3) and (β_4) measure the differential effects of inflexible EPL (pro-workers regime) with high enforcement, and flexible EPL (pro-employers regime) with low enforcement on two dependent variables respectively. Sample states with neutral EPL (with '0' code) and average enforcement intensity (with '0.23' mean) are being treated as an omitted category. When faced with high firing costs, firms located in inflexible states would have strong incentives to hire more temporary workers than those firms already located in flexible states. Thus, the magnitude of coefficient (β_3) is expected to be positive and larger than (β_4) i.e. ($\beta_3 \geq \beta_4$).

Firms' decisions to use capital intensive technology or a labour intensive mode of production are also influenced by the labour regulation climate. Most of the industries in India are labour intensive, so the negative of strict EPL is likely to affect the workforce composition of the firm. In this respect, the study tests in specification (3) whether labour intensive firms recruit contract workers differently across states with flexible and inflexible labour regimes.

$$Y_{i,s,t} = \alpha_i + \alpha_s + \alpha_t + \beta_1(EPL_{s,t}) + \beta_2(ENFORCE_{s,t}) + \beta_3(INFLEX-EPL_{s,t} * HIGH-ENFORCE_{s,t} * LABINTENS_{i,s,t}) + \beta_4(FLEX-EPL_{s,t} * LOW-ENFORCE_{s,t} * LABINTENS_{i,s,t}) + \delta_{s,t} + \varepsilon_{s,t} \dots \dots \dots (3)$$

To estimate the impact, the study adds an additional variable - labour-intensity dummy that takes the value '1' if the industry belongs to the category labour-intensive industry and zero otherwise to (β_3) and (β_4) respectively.

2.5.1. Summary Statistics:

Before we proceed to formal analysis, Table 2.1 presents a descriptive statistic of all relevant variables used in this study. The average size of the contract workforce in a given industry-state pair is 1341 with the standard deviation of 7687. The maximum value of contract workers (i.e., 2,74,266), with the value of the standard deviation, and their relative difference indicates that the growth of the contract workers workforce is heterogeneous across the industry-state pair. On the contrary, the relative difference between the maximum number of regular workers (i.e., 2,45,973) and a standard deviation (i.e. 12,815) indicates that the average number of regular workers is relatively less dispersed than those of contract workers. Notably, the difference between the maximum numbers of both types of workers is low. This explains that the variation in different EPL states causes firms to use either or both type of workers at a maximum level. There are on an average, 105 factories in each industry-state pair. The mean cumulative score of EPL is (0.31) across all states, which is more close to the value of EPL index (0.39), constructed by Deakins et al. (2007). The variation in enforcement intensity across states appears to be low due to an overall decline in the total number of labour inspectors. Other state level variables, such as per capita state domestic product, per capita road lengths, per capita electricity consumption, and per capita state development expenditure exhibit remarkable heterogeneity in state level resource endowments and development indicators.

Table 2.1: Descriptive Statistics

Variables	Obs.	Mean	Std.Dev	Min.	Max.
State-Industry Level Outcomes					
Contract Workers	9586	1341.31	7687.44	0	274266
Regular Workers	9586	4105.05	12815.41	0	245973
Total Workers	9586	7048.15	19571.75	0	348062
Value Added by Contract Workers	9586	1250.02	2381.01	-578.5	151421.4
Total Factory	9586	105.82	246.29	0	4301
Total Output (in '000 INR)	9586	51472.38	195363.72	-79257	4493838
State Level Institutions					
Employment Protection Legislation (EPL)	9586	0.31	1.27	-2	4
Enforcement Intensity (ENFORCE)	9586	0.23	0.26	0.05	0.48
State-Industry Level Control Variables					
Value Added (in '000 INR)	9586	68433.93	256603	-12197	8959593
Net State Domestic Product (Per Capita in INR)	9586	252.74	139.94	57.86	847
Development Expenditure (Per Capita in INR)	9586	14824.82	10612.96	224	47695
Electricity Consumption (Per Capita in INR)	9586	1283.00	1870.14	75.06	14761.84
Road Lengths (Per Capita)	9586	112334.9	88606.91	223	336982

Notes: The database is a balanced panel of three digit state industries that is present in the data in all 8 years and includes an average of sixty-four three digit industries in the thirty-one Indian states over the period 2000–2007.

2.6. Empirical results:

2.6.1. Effects on the incidence of contract workers by EPL strictness and enforcement intensity:

It is evident from the previous sections that firms' decisions to hire contract workers are highly influenced by various institutional factors specific to the particular country. In the context of India, this chapter identifies variations in EPL and enforcement intensity in Indian states over several years as a major source of heterogeneous growth in the proportion of contract workers in the manufacturing sector. First the test of the premise: whether firms located in stricter EPL states hire differentially more temporary contract workers in response to variable enforcement intensity. Table 2 presents the estimated results for Eq. (1)—whether strict EPL and high enforcement intensity induce demand for contract workers at the aggregate level. Col. (1) of Table 2.2 shows that the overall impact of EPL and enforcement intensity is positive and significantly associated with the share of contract workers. The average estimated effect is larger for the coefficient on enforcement intensity than EPL. Next, is the control for differential industry-state-year specific effects. The inclusion of these effects allows a control for unobserved, time-varying, industry-state shocks that are potentially correlated with the variables of interest (thus, exploiting changes within states over time). In addition to fixed effects, there is a control for state specific covariates to analyse the robustness of the baseline specification. Inclusion of these control variables allows identification of the effects of labour regulation, and enforcement that vary along the some dimension. It further mitigates concerns that economic development and growth are endogenous to industrial development; while controlling for these potentially important determinants of industrial performance (Aghion et al. 2008). Col (2) reports that the magnitude of coefficients becomes larger for both independent variables after controlling for fixed effects and state level covariates. The results indicate that strongly enforced legal rights for regular workers actually increase the demand for contract workers more than strict EPL. Both the estimated coefficients are positive and significant but the magnitude of enforcement intensity is higher than EPL. High enforcement intensity that actually increases the overall compliance costs with labour regulation is likely to increase the demand for contract workers. The point estimate suggests that one unit increase in enforcement intensity leads to a 1.05 percent point basic increase in the proportion of contract workers within an industry.

Results obtained from Col. (1) and (2) shows that firms located in strict EPL and a high enforcement regime are likely to hire more contract workers. However, a firm perceives a higher level of enforcement intensity as a stronger factor that influences their choice for contract workers than strict EPL. The effectiveness of flexible or inflexible labour laws depends on how well they are being enforced in a particular context. As mentioned in the introduction, labour markets in developed countries generally comply, but this is not true for the labour markets of developing countries. Although India appears to be strict in terms of EPL on paper, in practice the legislations are poorly enforced (Nagaraj 2004). Next, the study tests the joint impact of EPL and enforcement intensity on the share of contract workers. Columns (3) and (4) re-estimate the baseline specification by adding an interactive term i.e. (EPL*ENFORCE), to analyse the average impact of strict EPL when it is correctly enforced on the firms' demand for contract workers.

Using controls and fixed effects, the estimated impact of the interaction term is large, positive and significantly different than zero for contract workers. The point estimate indicates that a unit increase in strictness of both EPL and Enforcement are likely to yield a positive impact on contract workers in the state-industry pair by 0.31 percent point. This implies that both firing costs as well as compliance costs (i.e. through effective enforcement), as mandated through strict EPL, act as pivotal factors in the employment decision. Thus, when faced with strict legal regimes, firms would probably circumvent those laws by reducing the demand for regular workers and increase the demand for temporary contract workers since the latter category of workers are exempted from legal compliance.

Table 2.2: Effects of EPL and Enforcement Intensity on the Share of Contract Workers (Aggregate)

State-Industry Panel				
	(1)	(2)	(3)	(4)
	Log contract workers	Log contract workers	Log contract workers	Log contract workers
EPL	0.0199* * (0.0101)	0.035*** (0.010)	0.083*** (0.031)	0.056*** (0.017)
ENFORCE	0.354** * (0.128)	1.054*** (0.155)	0.100** (0.046)	1.087*** (0.158)
EPL*ENFORCE			0.321*** (0.092)	0.312*** (0.027)
<u>Controls</u>				
Log NSDP		-0.423*** (0.040)		0.113*** (0.017)
Log DEV EXP		- 0.228*** (0.025)		-0.224 *** (0.025)
Log Electricity		0.317*** (0.026)		0.312*** (0.027)
Log Road		0.115*** (0.017)		0.041*** (0.040)
Fixed Effects (Industry+Year+State)	No	YES	NO	YES
Constants	2.555** * (0.032)	3.279*** (0.085)	2.524*** (0.033)	1.068*** (0.243)
Adj R²	0.15	0.21	0.15	0.20
No. of observations	9586	9367	9586	9367

Note: The database is a balanced panel of three digit state industries that is present in the data in all eight years and includes an average of sixty-four three digit industries in the thirty-one Indian states over the period 2000–2007. Robust standard error is reported in parentheses and they are clustered at the level of states. * Significant at 10 %; ** significant at 5 %; *** significant at 1 %.

2.6.2. Effects on the incidence of contract workers by variable EPL strictness and enforcement intensity:

In this section, there is discussion of the results on the differential responses of firms towards contract workers that vary across states with different labour regulations as well as with a diverse level of enforcement intensities as formulated in the Eq. (2). It is expected that due to a restrictive legal environment, firms located in inflexible states would have a strong incentive to hire more temporary workers than those firms who are already located in a flexible environment. Thus, the estimated effects would be larger in inflexible states as compared to flexible states. Col. (1) and (2) in Table 2.3 report that the differential response to contract workers is higher in a strict EPL regime with high enforcement intensity; the response is quite low in states with low EPL and low enforcement intensity. In the same column, the coefficients on EPL and enforcement intensity reports the analogous results as presented in the previous section. In col. (3), there was control for fixed effects and it included additional control variables to check the robustness of results obtained from col. (1) and (2). The re-estimated results are fully consistent with those obtained above. States that have strict EPL with a high enforcement intensity are likely to witness a greater increase in the number of contract workers than those states which have had a flexible labour regulation regime. The results obtained from Table 2.2 also provide a strong case for differential response of contract workers, through rejecting the hypothesis that the response to contract workers is equal across EPL and enforcement regimes. The point estimate suggests that highly inflexible states, with strict enforcement intensities, experience 0.23 percent point higher incidence of contract workers relative to flexible states with lenient enforcement. This result is indicated in the Fig. (2.4) that capture the macro level trend.

Table 2.3: Effects on the Share of Contract Workers by variable EPL and Enforcement Intensities (Disaggregated)

State-Industry Panel			
	(1)	(2)	(3)
	Log contract workers	Log contract workers	Log contract workers
EPL	0.101** (0.046)	0.025** (0.013)	0.044 *** (0.013)
ENFORCE	0.124 *** (0.008)	1.014*** (0.155)	1.593*** (0.167)
HIGH_EPL*HIGH_ENFORCE (β_3)	0.448 *** (0.041)	0.501*** (0.040)	0.617*** (0.081)
LOW_EPL*LOW_ENFORCE (β_4)	0.287** * (0.049)	0.381*** (0.048)	0.592*** (0.060)
<u>Controls</u>			
Log NSDP			-0.373*** (0.040)
Log DEV EXP			-0.200 *** (0.025)
Log Electricity			0.325 *** (0.027)
Log Road			0.189*** (0.019)
Fixed Effects (Industry+Year+State)	NO	YES	YES
Ho: (β_3) -(β_4)=0			0.283*** (0.004)
Constants	2.728** * (0.035)	2.732*** (0.038)	1.238*** (0.251)
Adj R²	0.16	0.20	0.22
No. of observations	9586	9367	9586

Note: The database is a balanced panel of three digit state industries that is present in the data in all eight years and includes an average of sixty-four three digit industries in the thirty-one Indian states over the period 2000–2007. We report robust standard error in parentheses and they are clustered at the level of states. * Significant at 10 %; ** significant at 5 %; *** significant at 1 %.

2.6.3. Effects on the incidence of contract workers across labour intensive industries caused by variable EPL strictness and enforcement intensity:

In India, almost all industries rely on labour intensive technology. The selection of technology for the production activities is susceptible to the local regulatory environment. In the previous two sections, it was seen that the variation in strictness in EPL and enforcement intensities across states leads to differential responses to the demand for contract workers. In this section, the response of these variations in flexible, inflexible and neutral labour regimes is exploited and tested for whether they vary across the labour intensive industries. There is an estimate of the regression Eq. (3), analogous to the previous Eqs. (1) and (2). In this specification, our main independent variables interact with the dummy variable for labour intensive industries. Col. (1)–(3) in Table 2.4 report the average effect of the interaction term that allows examination of the differential effects for labour intensive industries across states. Controlling for macro trends and fixed effects, the average effect on the incidence of contract workers, in labour intensive industries, by variable EPL, and enforcement intensities, in the inflexible states, is somewhat higher compared to the flexible states. The null hypothesis: the response to temporary contract workers in labour intensive industries is equal across different EPL and enforcement regimes. The point estimates indicate that firms located in pro-worker labour states with a high enforcement intensity demand 0.13 percent point basis more contract workers than firms located in pro-employer states with low enforcement intensity.

Table 2. 4: Effects on the Share of Contract Workers across Labour Intensive Industries by variable EPL and Enforcement Intensities (Disaggregated)

State-Industry Panel			
	(1) Log contract workers	(2) Log contract workers	(3) Log contract workers
EPL	0.019* (0.011)	0.034 *** (0.010)	0.034*** (0.010)
ENFORCE	0.508 *** (0.141)	0.445*** (0.134)	0.985*** (0.157)
HIGH_EPL*HIGH_ENFORCE*LABINTENS (β_3)	0.025** (0.012)	0.033** (0.0124)	0.041*** (0.015)
LOW_EPL*LOW_ENFORCE*LABINTENS (β_4)	0.032 ** (0.015)	0.033** (0.015)	0.042*** (0.0125)
Controls			
Log NSDP			-0.437*** (0.040)
Log DEV EXP			-0.238*** (0.0255)
Log Electricity			0.338*** (0.0275)
Log Road			0.125*** (0.0177)
Fixed Effects (Industry+Year+State) Ho: (β_3) -(β_4)=0	NO	YES	YES 0.1363*** (0.0178)
Constants	2.545*** (0.032)	2.568*** (0.035)	2.443*** (0.0165)
Adj R²	0.16	0.19	0.21
No. of observations	9586	9586	9586

Notes: The database is a balanced panel of three digit state industries that is present in the data in all eight years and includes an average of sixty four three digit industries in the thirty one Indian states over the period 2000-2007. Robust standard errors are reported in parentheses and they are clustered at the level of states. *significant at 10%, ** significant at 5%, ***significant at 1%.

2.6.4. Endogeneity concern and robustness checks:

Throughout this chapter, the effect of EPL and enforcement intensity on the share of contract workers has been considered, but it cannot be denied that these effects could be driven by a reverse causality. A change in labour regulations does not occur randomly. In this case, it is also possible that changes in labour regulation may result from an inconsistency in economic and political outcomes that would influence the costs and benefits of passing individual amendments to the IDA.

In such a case, our estimates of these effects would be too high. Using exogenous sources of variations in the IDA, and the labour regulation measure as an instrumental variable will help address this concern. Besley and Burgess (2004) found that most changes in labour regulation took place after 1977, following the declaration of a state of Emergency. This caused a shock to the incumbent sovereign status in the subsequent elections. The Congress party lost political power in sixteen out of the thirty-one sample states. The newly formed non-Congress government in these states introduced new ideas for the development of industrial relations. Thus, early changes in the IDA can be associated with this political shock. Besley and Burgess (2004) suggest two measures for capturing the initial conditions that trigger political development in each state and their influence on labour regulation for the period post 1977 when political competition intensified: (1) the pre-1977 unionisation, and (2) the historical pattern of land tenure captured by the proportion of districts in each state, which had non-landlord-based revenue collection systems. These two variables explain significant transitions in industrial relations due to changes in political power from the Congress party to non-Congress regional parties. States where regional parties have a majority witnessed a more protective attitude towards labour regulation and welfare, than the Congress-ruled states. Two variables as instruments are explored for regulation measures restricted to amendments that took place after 1977.

Col. (1) of Table 2.5 indicates the ordinary least square estimate of labour regulation measures from two instrumental variables for a sample of thirty-one states. Both instruments are strongly correlated with labour regulation (F statistics = 5.15). The union variable is positively correlated with labour regulation, while the variable based on the proportion of districts with non-landlord based revenue collection systems is negatively correlated with labour regulation. Cols. (3) to (5) report instrumental variable estimates of the effects of instrumented labour regulation on the proportion of contract workers. The results are robust to

instrument variables⁷. It also implies that the effects of labour regulation as an instrumental variable on the growth of contract workers in Indian industries, indeed has a slightly larger impact than those reported by the OLS. The standard errors for the IV estimates are also larger than the OLS standard errors. During the Emergency, a major transition in political control of states was accompanied by the revival of judicial activism in India. Raparelia (2013) observes that the Supreme Court of India in the late 1970s, emerged as a resuscitate judicial authority, and protected the Court's independence following its capitulation during the Indira Gandhi imposed Emergency (1975–1977). The study argues that the emergence of judicial activism in India was largely influenced by the swelling of diverse social movements that emerged in the mid-1970s. During the period, Indian courts began to deliver various socio-economic entitlements in the Constitution, justiciable through its substantive re-interpretations, and implicitly strengthening enforcement mechanisms (Chatterjee 1998). Higher judicial activism had a spill over effect on labour jurisprudence and industrial relations (Raparelia 2013). The study assumes that changes in the political climate during the Emergency would have influenced the enforcement of pro-worker labour regulation (inflexible). Two instruments were used to see whether variation in the enforcement intensities is primarily due to changes in the Court's stance, and not from the industrial development to enforcement of labour regulation. In col. (6), the OLS estimates of two instrumental variables on the enforcement index is positive and significant (F statistics = 7.56). This implies that the wave of changes in political climate was also associated with changes in the enforcement of labour regulation. The instrumental variable estimate of the effects of instrumented enforcement intensity on contract workers is positive and significant. This indicates that the changes in the attitude of enforcement authorities towards labour regulation would have been influenced by the changes brought by the Emergency. This attitude which still persists can be seen in the manner in which the enforcement authorities differentially enforce labour laws. As a robustness check, this study presents two estimates of alternative specifications in order to check the sensitivity of the findings. First, the measures on EPL and enforcement intensity with alternative indexes proposed by Goswami et al. (2002), and Montag (2013)⁸ and Fagerna's (2010)⁹, are replaced.

7. The F-statistic in the first stage regression is 7.26 (this is a state-year regression with standard error cluster at the state level), indicating that the instruments have some power in explaining the direction of labour regulation.

8. The index on labour regulation constructed by Goswami et al. (2002) is based on a survey of entrepreneurs and managers in 11,000 manufacturing companies in India. Montag (2013) uses both indices proposed by Besley and Burgess (2004) and Goswami et al. (2002) to construct a combined index of labour

The re-estimated result in Table 2.6 confirms that the effects of EPL and enforcement intensity are positive and significant on the growth of contract workers in the Indian manufacturing sector. Second, In Table 2.7, another robustness check is presented using the generalised method of moments (GMM) technique (see Arnullano and Bond 1991). Valid instruments in each time period for the first difference equation are specified. Col (1) in Table 2.7 controls for year and industry fixed effects by including dummy variables, controls for states fixed effects by first differencing the data, and then controls for the panel bias instrumenting the differenced lagged dependent variable with the lagged level of dependent variables dated t-2 and earlier. The coefficient on EPL and ENFORCE is still positive and significant. Next in col. (2), is included the more general specification of lags of the dependent and independent variables. The estimated effect of both EPL and ENFORCE is still positive and comfortably significant.

regulation. The index takes a value of 1 if both indices do not show any changes and -1 if either index contradicts the other.

9. Based on state level amendments to the IDA, Fagera's (2010) constructs a proxy index on "enforcement act" that would allow for individual workers or employers to apply directly to the Labour Court for adjudication, or an amendment that raises the punishment for non-implementation of the award.

Table 2.5: Endogeneity concerns

	EPL	EPL	Log contract workers	Log contract workers	Log contract workers	Log contract workers	Enforcement Intensity	Log contract workers
	OLS	OLS	IV	IV	IV	IV	OLS	IV
	1	2	3	4	5	6	6	7
Mean pre-1977 unionisation	0.149*** (0.572)	0.166*** (0.535)					0.002*** (0.000)	
Mean non-landlord tenure	-1.901** (0.957)	-2.030** (0.975)					0.0102*** (0.0021)	
Instrumenting Labour Regulation Enforcement			0.044*** (0.004)	0.157*** (0.417)	0.103*** (0.0255)			0.050** (0.021)
State Effects	No	Yes	No	Yes	Yes	No	No	Yes
Year Effects	No	Yes	No	Yes	Yes	No	No	Yes
Controls	No	No	No	No	Yes	No	No	Yes
F-test instruments	5.15	6.59					7.56	
Prob>F	0.0198	0.0089					0.005	
Adj R ²	0.47	0.49	0.12	0.12	0.11		0.05	0.08
Observations	248	9586	9367	9367	9367		248	9586

Notes: The database is a balanced panel of three digit state industries that is present in the data in all eight years and includes an average of sixty four three digit industries in the thirty one Indian states over the period 2000-2007. Robust standard errors are reported in parentheses and they are clustered at the level of states. *significant at 10%, ** significant at 5%, ***significant at 1%.

Table 2.6: Robustness Check-I

	Log contract workers	Log contract workers
	1	2
EPL	0.047** (0.023)	
ENFORCEMENT ACTS		0.064*** (0.024)
Controls	Yes	Yes
Fixed Effects	Yes	Yes
(Industry+Year+State)		
Constants	2.467*** (0.014)	2.587*** (0.033)
Adj R²	0.12	0.16
Observations	9586	9586

Notes: The database is a balanced panel of three digit state industries that is present in the data in all eight years and includes an average of sixty four three digit industries in the thirty one Indian states over the period 2000-2007. We report robust standard error in parentheses and they are clustered at the level of states. *significant at 10%, ** significant at 5%, ***significant at 1%.

Table 2.7 Robustness Check-II

	Log contract workers	Log contract workers
	1	2
Log contract workers $t-1$	0.041 *** (0.012)	0.043*** (0.012)
EPL	0.040*** (0.010)	
EPL $t-1$		0.099*** (0.008)
ENFORCE	0.303** (0.142)	
ENFORCE $t-1$		0.023*** (0.010)
Fixed Effects (Industry+Year+State)	YES	YES
Adj R²	0.18	0.20
Observations	8161	8161

Notes: The database is a balanced panel of three digit state industries that is present in the data in all eight years and includes an average of sixty four three digit industries in the thirty one Indian states over the period 2000-2007. We report robust standard error in parentheses and they are clustered at the level of states. *significant at 10%, ** significant at 5%, ***significant at 1%.

2.7. Conclusion:

This chapter estimates the joint effects of EPL and enforcement intensity on the incidence of temporary contract workers, by exploiting variations across the space and time to the extent of EPL and enforcement intensity in India. In particular, the study examines whether firms located in a stricter EPL regime hire differentially a greater number of temporary contract workers in response to variable enforcement intensity. The results indicate that the average effect of a strict EPL and enforcement intensity on the incidence of temporary contract workers is positive and statistically significant across all Indian states. This result corroborates the theoretical prediction and argues that the overall strictness of EPL that protects the rights of regular workers and ensures their strong enforcement causes firms to hire a greater number of temporary contract workers relative to regular workers. We report that firms in the inflexible labour regimes and those in the flexible labour regimes hire differentially more temporary contract workers in response to variable enforcement intensities. Finally, the findings reveal that the labour intensive industries located in the inflexible states, witness a higher incidence of contract workers than those located in the flexible states. Therefore, the conjecture emerges that firms hire differentially more temporary contract workers in response to variable enforcement intensity to circumvent firing and overall mandated compliance costs which further gives them more flexibility to adjust the workforce. This paper adds to the growing perception of the difference between the labour regulation and its actual enforcement, in developing countries, has not generated enough incentives for compliance with labour regulation. And therefore, firms prefer to use a greater number of contract workers to reduce labour costs, thus enabling them to adapt to the fluctuations in the product market competition. This paper does not claim that the strict EPL and enforcement intensities are the only factors responsible for the rise of contract workers in the Indian economy. There are other factors such as the state specific business environment, nature of the capital market, and foreign direct investment that could be responsible for shaping the industrial climate in India. Due to a lack of data at the state level, the study did not include the factors but hopes that such issues will be addressed through future research.

Chapter Three
To Conciliate or not to Conciliate:
Empirical Evidence from Labour Disputes in India¹⁰

3.1. Introduction:

Grievances and conflicts are an inevitable part of the employment relationship; establishing effective dispute prevention and resolution processes is a key to facilitating the smooth functioning labour markets. Among policy makers, the dispute prevention and resolution is attracting more and more attention, as the effective prevention and resolution of labour disputes is critical for sound and productive employment relations worldwide (ILO 2015 and Love 2015). However, in the absence of this mechanism, the labour market is likely to experience the strains of labour strikes and industry lockouts that would lead to an increase in number of workday stoppages and decrease in the production of goods and services respectively (ILO 2008).

At present, the industrial relation system, in almost all countries, provides a multi-tier dispute resolution mechanism to resolve an individual as well as collective labour disputes. Every country has developed a range of alternatives for resolving the labour disputes. This mechanism begins with a consultative process wherein, the disputing parties, with assistance from a third neutral person, bargain to settle their claims. Nevertheless, if the bargaining process does not converge into the desired settlement outcome then, as a last resort, the disputing parties may proceed to litigation in the labour court. A former mechanism is also referred as Alternative Dispute Resolution (ADR) and consists of mediation, conciliation and arbitration procedures (Brown and Iyres 1994). This mechanism does not involve going to the labour court and is less expensive as compared to other methods; whereas the latter involves a formal adjudication in a labour court or tribunal with excessive costs as compared to the

10. Note- This chapter was presented on 14th March, 2015 at the first International Conference on Law and Economics, jointly organised by Gujarat National Law University (India), Indian Institute of Management Ahmadabad (India) and Indian Institute of Technology Kanpur (India). This chapter was selected for publication in the conference proceedings of an edited book entitled, "Breaking New Ground: Dispatches on Law & Economics from India". The editors of the book are Prof. Ranita Nagar and Dr. Hitesh Thakker of Gujarat National Law University (India) and it is being published by Eastern Book Company, India. The book is scheduled for release in the second week of June, 2016 at Gujarat National Law University. The submitted copy of this manuscript is available from the EDLE secretariat.

conciliatory and mediation methods. Among many ADR programmes, the conciliation and mediation methods provide a loosely structured process in which a third neutral party assists in the negotiation process through promoting a voluntary interpersonal communication and sharing the private information (Reif 1990). Unlike an arbitrator, a third neutral party, both in a conciliation and mediation process does not render a decision.

In many legal conflicts, the demand for ADR is gradually gaining momentum, and many countries are using this as an effective method for the resolution. Even in labour conflicts, the application of ADR mechanism for the individual and collective disputes is advocated on economic efficiency grounds, as it reduces the total cost of dispute resolution and assures the maximisation of social welfare through mutual negotiation among both parties. In the context of developing countries, as part of World Bank Investment Climate Program, governments have been advised to use ADR in almost all branches of legal conflicts since the procedural law in the traditional dispute resolution system has turned out to be more cumbersome and inefficient, hurting the sentiments of the private sector (World Bank 2008). Hence, the obvious question arises- are the dispute resolution mechanisms embroiled in the broader package of ADR really efficient?

Notable studies in law and economics have also pointed out the welfare maximising effects of an ADR programme that seeks to reduce the case disposition time and promote settlement (Heise 2010 and Shavell 1995). In those studies, theoretical models of ADR have gone much ahead relative to the empirical studies to support this claim (Heise 2010 and Stiponwich 2004). Most empirical assessments of ADR programme efficiency have revealed mixed results (Heise 2010). However, the validity of their argument is limited to assess the efficiency of arbitration as one distinct form of ADR mechanism compare to other forms such as mediation and conciliation (Doornik 2014). Hence, the present study broadly focuses on the relevance of conciliation as a method in labour dispute resolution and specifically, it aims to analyse the impact of mandatory and non-mandatory conciliatory systems on the negotiated settlement and dispute resolution time. Under the mandatory conciliation system, both parties resolve their dispute with assistance from a neutral conciliation officer and agree to accept the negotiated award; while in the non-mandatory conciliation system, both parties can freely accept the negotiated award or prefer to bring the case for resolution in the labour court.

The primary motivation to use the Indian case stems from a recent amendment to Section 2(a) of the Industrial Disputes Act of 1947 (hereafter IDA) which provides a multi-tier dispute resolution mechanism¹¹. Prior to amendment, both disputing parties were mandated to bring the dispute to the conciliation officer who provides an amicable environment for the settlement in a stipulated time frame (i.e. not more than 6 months). This was the regime of mandatory conciliation process. However, in the amended Industrial Disputes (Amendment) Act 2010¹², the parties seeking to redress their disputes in a consultative process can have direct access to labour courts, irrespective of the conciliation proceedings or the negotiated outcome in the conciliation conference. This amendment allows disputing parties to resolve their case in a labour court and it is often called the non-mandatory conciliation regime. This amendment to the Act gives us a unique opportunity to shed some light on the role of conciliation mechanism in resolving labour conflicts under the shadow of court litigation and second, whether the outcome achieved in the mandatory conciliation system is better than that achieved in the non-mandatory conciliation system.

In a broader context, this change, however, implies that this amendment to the Act seeks to minimise the role of a conciliator in handling labour disputes, as it aims to build up undisposed cases before the labour judiciary. On the one hand, an amendment to the Act has been appreciated by many employers' associations, labour lawyers and civil society organisations (ISF 2010), while on the other hand, a set of groups had expressed their concerns for the potential negative impact of this amendment. The latter group argues that it would minimise the role of the conciliation method of resolving labour conflicts, which is a less expensive way to settle the claim than to adjudicate in the labour court and give them enough flexibility to negotiate their settlements (CITU 2015). However, those who support the amendment believe that it would liberate them from the adverse bargaining process as well as from the complex process of securing permissions from the appropriate authority to take necessary business decisions at the time of business uncertainties (ILO 2008). At present, a comprehensive empirical study is starkly missing to support either of their claims.

In this chapter, a unique dataset is used, comprising the samples of labour disputes filed between the period 2008 and 2011 from two Central Government Industrial Tribunal-cum-

11. Section 2(A), Industrial Disputes Act §§ 1-52 (1947).

12. Section 2(A), Industrial Disputes (Amendment) Act §§ 1-38 (2010).

Labour Courts (known as CGITs), namely, New Delhi and Mumbai. These micro datasets were obtained by using the Right to Information Act (RTI), 2005. This micro data set allows us to disentangle the effectiveness of conciliation process as one form of ADR in settling the labour conflicts as compared to trials in the labour court. First, the datasets were combined across time periods and labour tribunals, and a simple *Ordinary Least Square* (OLS) regression model was exploited to estimate the effects of various case-related variables on the outcome of the conciliation process. Secondly, the study investigates the impact of amendment to the IDA of 1947 on the basis of the outcomes observed in the conciliation and trial processes. This empirical exercise will complement the first analysis, by exploiting a dummy variable regression model comparing the outcomes achieved in the post-reform period (non-mandatory regime) with the pre-reform period (mandatory regime) for the conciliated and litigated disputes.

Results obtained from this study indicate that at aggregate level, labour disputes settled in the conciliation process takes less time than those appealed in the labour courts. Furthermore, the study also confirms that the overall conciliation process succeeded in reducing the differences between the initial claim and final payments received by workers and in improving their settlement rates through mutual bargaining. In addition, it also takes into account a recent amendment to the IDA of 1947, which allows direct access to labour courts- undermining the role of the conciliation process in resolving labour conflicts. Results obtained at the disaggregate level; suggest that the disputes settled in the pre-reform period (mandatory conciliation) experienced a reduction in the total disposition time. This result is consistent with the theoretical prediction of ADR theory and it also corroborates the results obtained at the aggregate level. Moreover, the study observes that the labour disputes resolved in the mandatory conciliation process were settled more quickly compared to disputes which were part of a non-mandatory conciliation process. Finally, the study argues that a mandatory conciliation process provides an efficient way to reduce the differences in the final payments received by workers, as it provides a time-bound negotiation space to disputing parties relative to the trial. In the context of developing countries such as India, the analysis provides strong empirical evidence to support policy measures for the application of conciliation mechanisms to resolve labour conflicts.

The chapter is organised as follows: Section 3.2 provides the background of previous studies and proposes testable hypotheses. Section 3.3 describes the institutional underpinning of labour dispute resolution mechanism of India. Section 3.4 presents the Data, Research Design

and Descriptive Statistics. Section 3.5 presents the main results. Finally, Section 3.6 presents the conclusion.

3.2. Review of Previous Studies:

3.2.1. Theoretical Studies:

This chapter is broadly related to the literature on settlement bargaining and dispute resolution, and more specifically to the work on alternative dispute resolution. A significant portion of literature has focused on explaining why settlement negotiations fail in legal disputes, and on assessing the effects of case selection in trial courts. In this framework, the standard economic models assume that the adjudication is costly; parties involved in disputes hold private information and are mandated to behave according to the rational decision theory. Such assumptions allow them to take a rational account of the expected costs of adjudication and therefore, all disputes conclude in private settlement.

There are two views in the existing literature on the subject that explain why settlement negotiations fall apart. According to the first view, disputing parties' divergent expectations about the likely outcome of the trials drive them to excessive optimism, and incentivise them to move from the settlement option to a formal suit in trial courts (Priest and Klein 1984; Shavell 1982; Landes 1971). A second view explains the role of disputing parties' strategic behaviour and the incomplete information that affects the settlement bargaining (Nalebuff 1987; Bebchuk 1984; P'ng 1983; Cooter et.al. 1982). In these models, the defendant will accept the offer in cases where the plaintiff is likely to prevail at the trial and will reject the offer in cases where the plaintiff is relatively weak in the trial. Both the information structure and divergent expectations systematically explain the plausible difference between the average underlying merit of disputes that are settled out of court and disputes that proceed to adjudication.

When the aggrieved parties fail to negotiate their settlement outcome, then the role of the third party becomes inevitable in providing an amenable environment for the settlement of legal disputes. A host of studies on ADR give immense importance to the role of the third neutral party in resolving legal disputes that promises reduction in the costs and case disposition time as compared to formal litigation. Among many types of ADR, the arbitration method is widely believed to be more popular than other methods of ADR. Many hybrid models of arbitration have been evolved, studied and extensively applied in many branches of

legal disputes. The arbitration method is applied with an aim to promote settlement negotiation under the shadow of adjudication. The arbitrator- a neutral agent, acts like a potential judge who holds the powers to replicate the court decision. The economic model of ADR assumes that parties take a rational account of the effects of ADR on the likely disposition of their disputes (Shavell 1995). The model holds two scenarios- first, where both parties hold a probabilistic belief about the outcome of ADR and second, where both parties have an expected judgement about how the ADR influences the outcome of the trial. The study concludes that the tendency to bring suit is not affected by the voluntary ADR, but this tendency reduces significantly when both parties are mandated to submit their disposition with the court annexed ADR (ibid). Second, whether the ADR is binding or not, its effectiveness and application is significantly determined by the outcome predictive capacity of ADR (Shavell 1995). Therefore, the parties' decision to participate in ADR is presumably determined by how closely the ADR predicts the likely outcome of litigation and how each party's divergent belief about expected outcomes converge into a desired settlement. Even though the settlement under ADR might be less costly and may take lesser time than litigation, the parties' motives vary across cases.

In many instances, the ADR participation might appear to be effective. Some litigants, perhaps those wary of 'second-class justice' either avoid ADR altogether or after participating in ADR take legal disputes to trial (Priest and Klein 1984) or sense some reasonable level of uncertainty (both factual and legal) about their case outcome so that they could bear the cost of litigation (Ibid). Similarly, parties engaging in the mandatory ADR programme were reported to have felt more satisfied than those who went to trial (Rosenberg and Folberg 1994). In terms of effectiveness, the mandatory ADR programme improves information sharing between parties, reduces the potential cost of trial and reduces case disposition time. However, in the unilateral arbitration, the size and content of the arbitrated outcome cannot on its own explain the frequency and recourse to arbitrations (Manzini and Mariotti 2001). Other factors that are outside the bilateral negotiation play an important role in influencing the parties' behaviour to engage with the arbitration. In contrast, consent arbitration sometimes increases the strategic complexity of the game to the point where there are inefficient outcomes with delays in agreements. In both situations, it is assumed that the parties enjoy the rights to alter offers in repeated rounds of meetings and the threat to call in an arbitrator would prevail if and only if, either party gets a lower offer than expected from the bargaining. The asymmetric information bargaining model examines both the costs and benefits with

increasing rate of settlements. They conclude that the settlement can have benefits of reducing litigation costs and delay, but it can also reduce deterrence and the accuracy of the legal system (Friedman and Wickelgren 2008).

A settlement of a legal claim is a deliberate act and disputing parties participate in the process of settlement of their respective claims only if such an outcome is consistent with the interests of both the parties. Some of the significant studies elaborated above explain the main drivers of settlement in legal disputes, and provide us with the advantages of ADR in promoting settlements. Although most theoretical studies on ADR agree that participation in ADR has positive incentives for disputing parties, empirical research on the efficacy of ADR is scant.

3.2.2. Empirical Studies:

In a recent review of empirical studies of 27 general civil litigation court-connected ADR programmes, Wissler (2004) found that out of 27 studies, approximately one-half found no difference in settlement rates between ADR and non-ADR cases. The other half found that ADR cases tended to have a somewhat higher rate of settlement or a somewhat lower rate of trial judgement on a dispositive motive. Heise (2010) using data from 46 large countries consisting of 8038 trials with 166 appeals participating in ADR programmes, finds a mixed support for ADR programmes. Specifically, the study indicates that participation in an ADR programme correlates with an increased likelihood of settlement but not with reduced disposition time and ADR programme mixed efficacy diminishes its appeal to litigants.

In a similar vein, the study by Kaplan et.al.(2008), exploits a newly assembled dataset on procedures filed in Mexican labour tribunals to analyse the determinants of final awards to workers. The study indicates that on an average, workers receive less than 30 percent of their claims in trial judgement as compared to settlements. Multiple claimants against a single firm are less likely to settle, which partly explains why workers involved in these procedures receive lower percentages of their claims. Regardless of the motives and advantages of ADR, case settlements obtained in ADR create private and public benefits. In addition to such benefits flowing from timely and less costly resolution of disputes, it allows the judiciary to devote more time and care to other important branches of legal systems (Heise 2010).

There are many factors that limit the comparison between the present study and many other important empirical studies discussed above. The studies discussed so far, focus on the participation in court annexed ADR in the pre-trial stage and arbitration as one form of ADR

that promotes settlements of legal claims. However, there is a notable absence of work in the area of conciliation that is a more flexible way to resolve disputes than those discussed above. In this paper, the detailed information is collected on the amount of settlement, initial offer and the court award, which otherwise is unavailable in many studies discussed so far. Lack of important data on the amount of the initial claim implies that the present study cannot compare the percentage of recovery achieved by the plaintiff, as in many empirical studies. Information on settlements is usually unavailable, so empirical work in the area of ADR has focused on the probability of settlement or on failed settlement offers.

Clearly due to plausible differences across the datasets, legal areas and the time period studied in the literature; the present study attempts to provide a fresh perspective on the role of a conciliation mechanism in resolving labour conflicts by using the framework of ADR. More specifically, the study analyses the impact of the mandatory and non-mandatory conciliation mechanisms on the negotiated settlement and dispute resolution time.

3.2.3. Research Hypotheses:

Based on the previous section, this study proposes the following three hypotheses.

3.2.3.1. Hypothesis I- Standard ADR theory as elaborated in the previous section assumes that ADR mechanism is a less costly and more flexible way to resolve disputes than the court trial (Heise 2010). Therefore, the study hypothesises that settlement rates are higher in disputes participating in mandatory conciliation process as compared to disputes participating in a non-mandatory conciliation process that allows both parties to proceed in a labour court.

3.2.3.2. Hypothesis II- In the mandatory conciliation process, a conciliation officer stimulates mutual communication between parties about the private information that generates better incentives for the parties, as accuracy in determining the final outcome in mutual negotiation often improves on what would have been litigated in the labour court (Doornik 2014). Therefore, the study hypothesizes that the difference between the initial claim and final settlement negotiated in the mandatory conciliation would be less than those disputes concluded in the non-mandatory conciliation mechanism.

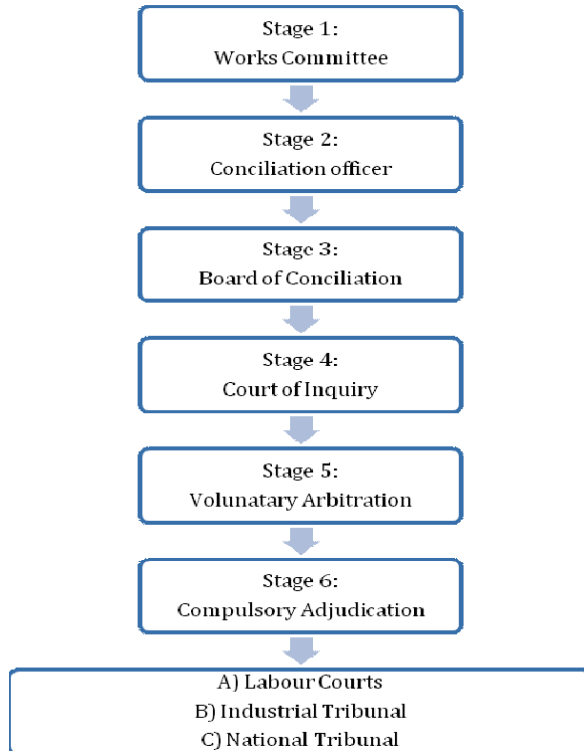
3.2.3.3. Hypothesis III- The conciliation method of dispute resolution provides a time-bound negotiation space to disputing parties relative to trial (Brown and Iyres 1994). Hence, the present study proposes that the total disposition time for dispute resolution in the mandatory

conciliation process is lower than those disputes resolved in the non-mandatory conciliation process.

3.3. Institutional Background: Labour Dispute Resolution Mechanism in India

The IDA of 1947 in India deserves special attention in this chapter. The main objective of the Act is to govern the industrial dispute resolution procedures. This Act, along with other labour laws, has continued since the pre-independence period in the country; hence, it promulgates the British Legacy and British wartime legislation that were aimed to regulate industrial conflicts and peacefully sustain the production activities (Bhattacharjee 2003). The Act applies to a variety of establishments and industries in India. The term “industrial establishment” or “industries” is used in the widest possible sense, bringing almost all economic activities within the ambit of the Act. The Act applies to all “workmen” employed in these industries as defined above but does not apply to the person who is engaged in the industry in a supervisory/managerial capacity or drawing more than Rs. 1600 (Indian Rupees) as a monthly salary. In spite of that, the broad coverage of the Act makes it one of the most widely applied acts in India. The main objective of the Act is to govern the industrial dispute resolution mechanism and provide a multi-tier dispute resolution setup for resolving labour conflicts.

Figure 3.1: Industrial (Labour) Dispute Resolution System



Source: Source: Industrial Dispute Act of 1947.

Figure 3.1 explains the stages of the industrial disputes resolution system in which collective as well as individual disputes are resolved at various levels. These stages can be better explained by the following example. Suppose a worker receives a notice from his/her employer that his/her employment at the firm has been terminated, and if she/he thinks that it is unjust according to the law then she/he can raise this issue in a stage 1 before the work committee or else in front of the Conciliation Officer (CO) (stage 2). A similar procedure is applied to a collective bargaining dispute as well (Saini 1993). These two stages are also known as a conciliation stage, where aggrieved parties may resolve the dispute through mutual negotiation. The CO is supposed to conclude the conciliation meeting in 6 months. If an employee feels that the negotiation is not fair or for any reason the negotiation fails, the CO can refer this issue to the appropriate government where, with the help of the Board of

Conciliation (an independent body constituted by the appropriate government) the negotiations may proceed in a fair manner.

However, it has been noted that such an institutional body does not really exist (ibid). So, the CO after hearing the bargaining deals prepares a confidential report about the failure of negotiations. The report then proceeds to the Directorate of Labour or Chief Labour Commissioner of the respective state. Depending upon the matter and its legal standing, the appropriate government may, further in stage 4, constitute a court of inquiry for investigating the matter about the dispute, and its main determinants of the failure of negotiations. Therefore, from stages 1 to 4, the parties may have a chance to arrive at a solution through the state mediated bargaining mechanism (i.e., a mechanism for conciliation). If the conciliation mechanism fails, (i.e., from stage 1 to 4) then the parties may approach through voluntary reference to arbitrators for the settlement of the industrial dispute (stage 5) under section 10-A of the IDA, 1947¹³. However, the final decision of the arbitrator in the dispute is binding upon all parties of the dispute. Though, it has many advantages over other mechanisms of dispute resolution (such as no litigation cost, expediency in delivering awards etc.), this method is not yet commonly used. Moreover, the efficacy of arbitration is largely buttressed by reliance on state intervention (Rao 2001; Mathur 1998). As a consequence of this, the dispute that had been moved from stage 1 (from conciliation to arbitration) enters into stage 6 with a proper reference from the appropriate government. This stage, as mentioned above, is a compulsory adjudication stage wherein every dispute is resolved in the Labour Courts, Industrial Tribunal and National Tribunal under section 7, 7A(1) and 7B(1) respectively¹⁴.

In Indian industrial relations, the role of a conciliator is pivotal to the dispute resolution process and he/she has the authority to inquire into the dispute and suggest possible solutions to bring the parties into an agreement (Basu 2012). The Conciliation officer is the first point of reference for dispute resolution, when the bilateral negotiation fails. As per Section 11 of the Industrial Dispute Act, 1947, all the disputes are routed through the jurisdiction of a conciliator officer to various stages of resolution (i.e., an arbitration and adjudication in the labour tribunal). The modus operandi of dispute resolution is to raise a dispute before the Conciliation Officer who must endeavour to resolve the raised dispute within 14 days from the date of raising the dispute. However, the process of conciliation is invariably less time-

13. Section 10(A), Industrial Disputes Act §§ 1-52 (1947).

14. Section 7, 7A (1) and 7B (1), Industrial Disputes Act §§ 1-52 (1947).

consuming than the adjudication since it has to be concluded in the first six months (Rao, 2001 and Malhotra, 1994). The Conciliation Officer in most cases, calls for a meeting with the parties, and if he does not succeed, he may decide to call another meeting at a later date. On most occasions, conciliation meetings last a whole day when the subject matter of the dispute involves much discussion. The strategy is to try to ascertain each party's bargaining and current positions and to suggest suitable compromises in order to settle the dispute. If the conciliation efforts are not successful, the Conciliation Officer may decide to call for a meeting at a later date, or may submit a failure report of the meeting with his recommendations to the appropriate government. The appropriate government may make a decision to refer the dispute to a labour court or national tribunal for adjudication.

3.4. Data, Research Design and Descriptive Statistics:

This chapter uses a collected dataset comprising of samples of labour disputes filed between the years 2008 and 2011 in two Central Government Industrial Tribunal-cum-Labour Courts (known as CGITs) namely, New Delhi and Mumbai. These micro datasets were obtained by using the Right to Information Act of 2005. Initial requests for the data were made under the Right to Information Act to collect the detailed information on labour disputes, terms of settlements, labour court award, the nature of disputes, parties to dispute etc. from 13 major CGIT-cum-LCs in India. However, due to the sensitivity of the data and the confidentiality clause of the dispute resolution procedure of the Conciliation Officer's report, the respective authorities of the Ministry of Labour and Employment of Government of India and Registrar of the CGIT-cum-LCs have officially responded to the request by providing a dataset from two CGIT-cum-LCs. There are 26 industries that fall under the purview of a central sphere in which the Central Government of India is an appropriate authority, and it is a principal owner of companies operating in those industries¹⁵. Both tribunals cover firms listed in the central sphere industries and those firms registered under the Factories Act of 1948. The micro dataset contains information of 234 labour disputes from Mumbai CGIT-cum-LC and 203

15. The main central sphere industries includes- 1) Transport Services 2) Agro Based Industries, 3) Medium & Light Engineering 4) Consumer Goods 5) Tourist Services 6) Financial Services 7) Contract & Construction Services 8) Transportation Equipment 9) Chemicals & Pharmaceuticals 10) Heavy Engineering 11) Coal & Lignite 12) Petroleum (refinery & Marketing 13) Other Minerals & Metals, 14) Telecommunication Services 15) Textiles, 16) Industrial Development & Technical Consultancy Services 17) Consumer Goods 18) Trading & Marketing 19) Steel 20) Fertilizers 21) Power Generation 22) Banking 23) Crude Oil 24) Insurance 25) Crop Insurance 26) Contraceptives, Pharmaceutical and Medical Devices.

labour disputes from Delhi CGIT-cum-LC for the period 2008-2011. The main causes of disputes are retrenchments, dismissals, bonus, wage and other allowances, others (including worker's injuries, discrimination, accidents), and firm closures.

As mentioned in the previous section, labour disputes were brought into the Indian dispute resolution mechanism either through a conciliation process or with a new amendment directly referring to the labour courts. In the conciliation process, there is only one statement of facts made jointly by the employer and employee in the presence of the Conciliation Officer and the resolution of the procedure is always a negotiation that results in settlement. A legal claim that is brought into a labour court contains the worker's claim, the employer's counter-claim or reply, the terms of negotiations that failed in a conciliation process, and finally the terms of the court ruling if the case is not settled.

In this section, the chapter describes the main variables relating to the legal claim, the disputing parties' information and resolution of conflicts. For all procedures filed in the sample disputes, the study observes the principal cause of dispute¹⁶, the date of filing, the geographic location of disputes, initial claims of the workers, a case disposition time (in days), tenure of workers, award of labour courts, settlement amount in the conciliation process, the number of Conciliation Officers and tribunal judges, and finally, whether the procedure is a settlement or a legal suit. The information obtained from the respective government officers can also be verified with various annual reports published by the Gazette of India.

To examine the first question, this chapter pooled the datasets across time periods and labour tribunals, and exploited a simple least square regression model to estimate the effects of various case-related variables on the outcome of the conciliation process. The same variables were regressed on the outcome of cases litigated in the labour courts. The three main variables of interest are: a) total case disposition time, b) differences in the outcomes achieved by workers (both in mandatory and non-mandatory conciliation processes), and finally, c) the final payments received by the workers. There are many factors that affect the outcomes achieved in the resolution process. However, due to limitations of the datasets obtained from the government sources, the study used workers' initial claims, their total length of tenure in the employment, participation in the dispute resolution via conciliation or directly approaching the labour court, and the size of the labour judiciary as pivotal independent variables that are

16. It is the main cause of dispute listed in the Industrial Dispute Act of 1947.

likely to have an impact on the dependent variables. These variables were observed separately for each conciliation type in both CGITs. The first exercise of pooling the dataset allowed an analysis of the statistical association between the case related independent variables with the dependent variable.

In a second exercise, the chapter investigates the impact of an amendment to the Industrial Dispute Act of 1947 on the outcome achieved in the mandatory and non-mandatory conciliation processes. This empirical exercise complements the first exercise, but instead of pooling the dataset, the study exploits a dummy variable regression model for comparing the outcomes achieved in the post reform period with the pre-reform period. In this approach, a dummy variable is assigned to the dispute which concluded in the post-reform period and then compares the outcomes with the pre-reform period.

In addition to two empirical approaches, this study also adds two fixed effects to the empirical models. The CGIT-specific fixed effects were employed to control for CGIT-specific factors such as total size of workforce, workload, approximate distance from the Supreme Court of India and the location of the industrial zones. The year-specific fixed effects were also employed to capture factors such as common shocks of industrial unrest and reforms in the workfare programme such as the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA).

Table 3.1 illustrates the descriptive statistics of labour conflicts concluded in the mandatory conciliation process and appealed in the labour court for two CGITs respectively. In the Mumbai tribunal sample, 234 disputes were entered into the industrial dispute resolution system during the period 2008-2011. Out of those, approximately 64 percent of disputes (i.e., 149 disputes) concluded in settlements with a Conciliation Officer of the respective state government and 36 percent (85 disputes) of disputes proceeded to and concluded in the labour tribunal. The mean values of workers' initial claims, settlement obtained in the conciliation and labour court award are INR 685627, INR 607335 and INR 650361 respectively. It is interesting to note that the average value of difference between the workers' initial claims and the settlement outcomes was less than the difference between the initial claims and the awards received in the labour court. This also implies that due to procedural flexibilities, the settlements obtained in the mandatory conciliation process reduced the expectation gaps between the parties' claims relative to the awards concluded in the labour courts.

There were 203 labour disputes registered with New Delhi CGIT. Out of those, 69 percent (142 disputes) of the disputes were successfully concluded in the conciliation process and 31 percent (65 disputes) were tried in the labour court.

In the New Delhi CGIT, the difference between workers' initial claims and the settlement amount is higher than those differences in disputes that ended in the labour court. In both CGITs, on an average, the disputes concluded in the conciliation process tended to take less time than the disputes litigated in the labour court.

Table 3.2 provides the descriptive statistics of all disputes entered in both CGITs. Labour conflicts related to outstanding bonus payments and annual increments in wages and other allowances are frequent causes of disputes that are observed in samples drawn from both CGITs for the causes of disputes which are raised under the Payment of Bonus Act of 1965 and Payment of Wages Act of 1936. Under the conciliation process, both types of disputes take less time to settle the claims as compared to disputes litigated in the labour tribunals. Labour disputes raised to recover the arrears in bonus payments are settled quickly in the conciliation process. The differences in the final bonus payments received by workers are lower than differences in payments that the workers would receive in the labour courts.

Table 3.1: Descriptive Statistics- Mumbai and New Delhi

	Mumbai			New Delhi		
	Obs.	Mean	Std.Dev	Obs.	Mean	Std.Dev
Initial claim*	234	685627	307782	203	663351	327146
Settlement in conciliation*	149	607335	272797	142	574548	283395
Case Disposition Time# (Conciliation)	234	126	70.75	203	139	71.92
Award in labour court *	85	650361	288679	65	677234	323489
Case Disposition Time# (Tribunal)	85	448	130.21	65	472	137.68
Participation in Conciliation	234	0.64	0.48	203	0.70	0.46
Participation in Tribunal	234	0.36	0.48	203	0.29	0.45
Number of Judges and Conciliator Officers	234	36	1.97	203	23	2.20
Tenure of Work#	234	5073	1784	203	5286	1806
Difference in Settlement*	149	60308	30620	142	63618	77238
Difference in Award *	85	66792	31543	65	58873	41216
Difference in Settlement@	149	10.84	0.62	142	10.79	0.74
Difference in Award @	85	10.96	0.60	63	10.89	0.64

Notes: *- in Indian

Rupees (INR), #- in days, @- in logs

Source: Author's own calculation based on collected data.

Table 3.2: Descriptive Statistics: Mumbai and New Delhi- (cause-wise)

	Mumbai			New Delhi		
	Obs	Mean	Std.Dev	Obs.	Mean	Std.Dev
Bonus						
Initial claim*	111	680922	307542	100	683179	312586
Settlement in conciliation*	68	607011	267033	71	587005	270038
Case Disposition Time[#] (Conciliation)	111	139	70.64	100	134	70.73
Award in labour court *	43	638028	298939	30	719803	307341
Case Disposition Time[#] (Tribunal)	43	468	130.65	30	497	139.96
Difference in Settlement*	68	59379	30006	71	57317	28330
Difference in Award *	43	65874	32458	30	61525	45766
Closure						
Initial claim*	12	755073	275176	14	586633	334286
Settlement in conciliation*	8	661235	246439	12	458414	284876
Case Disposition Time[#] (Conciliation)	12	129	50.94	14	167	82.67
Award in labour court *	4	727526	281827	3	694318	299829
Case Disposition Time[#] (Tribunal)	4	452	112.95	3	395	32.25
Difference in Settlement*	8	67027	27841	12	115613	251036
Difference in Award *	4	81169	35695	3	68116	22527

	Retrenchment					
Initial claim*	20	663286	325751	17	528588	270820
Settlement in conciliation*	13	465489	237595	12	510820	269155
Case Disposition Time[#] (Conciliation)	20	104	67.47	17	153	76.05
Award in labour court *	7	870421	203725	5	405225	182748
Case Disposition Time[#] (Tribunal)	7	366	110.13	5	484	130.87
Difference in Settlement*	13	40537	20188	12	52612	27170
Difference in Award *	7	84918	25198	5	39740	20413

	Wages and Allowances					
Initial claim*	80	718767	297234	53	696272	363319
Settlement in conciliation*	51	671140	263444	32	587721	312705
Case Disposition Time[#] (Conciliation)	80	108	67.78	53	123	59.88
Award in labour court *	29	619382	280853	21	708218	355350
Case Disposition Time[#] (Tribunal)	29	448	131.27	21	449	139.35
Difference in Settlement*	51	68182	29749	32	60546	32814
Difference in Award *	29	63246	30592	21	61207	42889

	Others					
Initial claim*	11	456939	332559	15	699354	300731
Settlement in conciliation*	9	405200	316920	11	718296	224540
Case Disposition Time[#]	11	169	79.59	15	162	80.44

(Conciliation)						
Award in labour court *	2	440183	255804	5	503215	338854
Case Disposition Time[#] (Tribunal)	2	317	116.67	5	411	139.32
Difference in Settlement*	9	45290	40581	11	75163	24683
Difference in Award *	2	45778	32851	5	42368	32628

Notes: *- in Indian Rupees (INR), #- in days, @- in logs Source: Author's own calculation based on collected data.

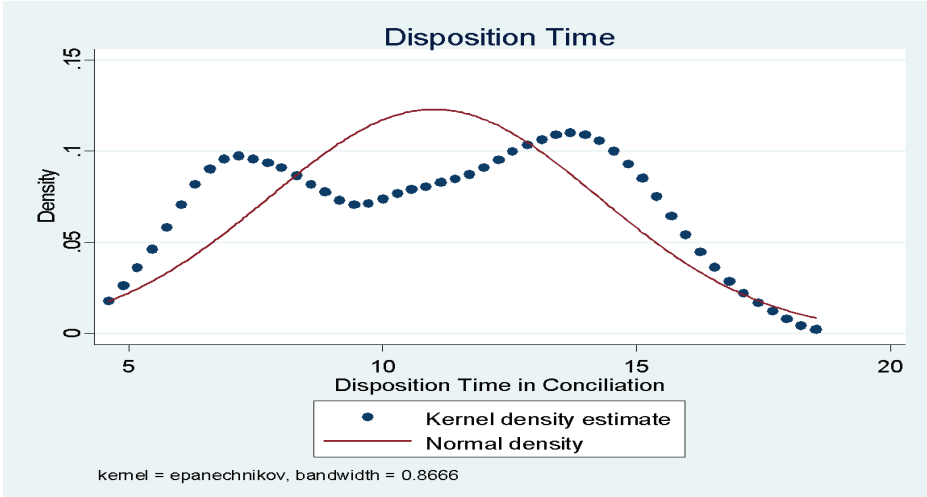
It is important to note that the disputes pertaining to wages and allowances do not show positive effects of disputes settled in the conciliation process relative to those concluded in the labour courts. This is possibly due to wages and allowances being prone to variations across states and is subject to prevailing real wages, costs of living, inflation and the level of economic activity in each state. However, such variations could not be possible with the disputes of payment of bonus, since it is a discretionary payment that workers would receive subject to the firm's financial position. Disputes pertaining to the firm's closure, unjust retrenchment and others (including discrimination, sexual harassment, workplace accidents etc.) are less frequent types of disputes that entered in to sample disputes. Therefore, the summary statistics of labour conflicts confirms the main prediction of the ADR theory that disputes settled in the conciliation process take less disposition time than cases concluded in the labour courts. Nonetheless, the descriptive statistics show mixed results for the settlement rates, final payments received by workers and differences of payments obtained in the conciliation vis-à-vis in the labour courts.

Figures 3.2 to 3.7 provide the kernel density estimates for disposition time, differences in final payments and final amounts received by workers in both CGITs. The figures are presented to capture the distribution of outcome variables that are concluded in conciliation and litigated in labour courts. Figures 3.2 and 3.3 show that despite the more spread out distribution processing which is observed, on balance the dependent variable, disposition time, is expressed by the square root of the raw numbers of days for

conciliation and trial courts. In Figure 3.2., there are two modes which indicate that on an average, the disputes that are similar in nature are resolved in the same time frame. In Figure 3.3, the observed time disposition variable is skewed towards the right with a long tail. This implies that the actual time taken to resolve the disputes in labour courts is higher than those approximated by the normal density distribution. Figure 3.4 shows the density estimate of differences in the amount received by workers in the conciliation process. The observed densities of disputes are actually approximate to the normal density estimate. However, one can observe in Figure 3.5 that the same approximation with a normal density estimate cannot be ascertained for disputes litigated in the labour courts.

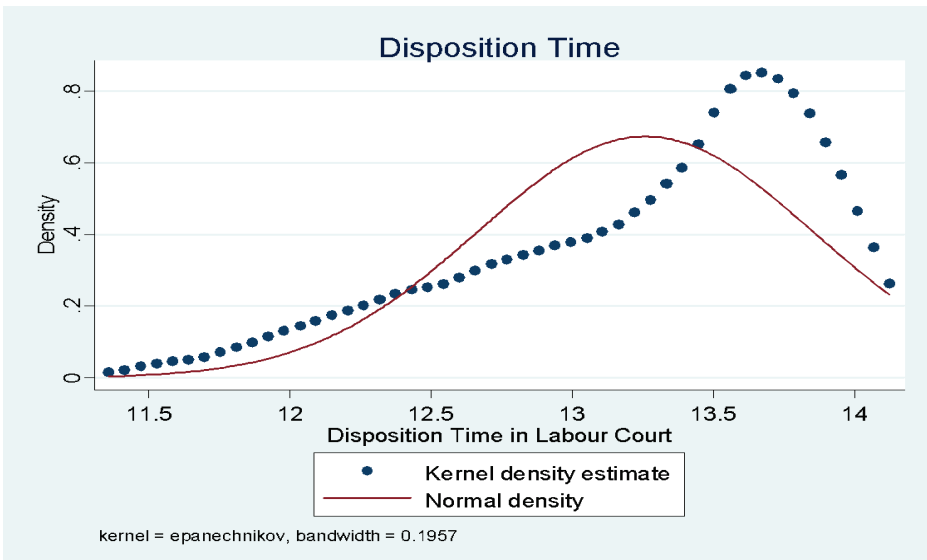
The actual differences of claims realised in the courts are much higher and skewed towards the right than anticipated by the normal density estimate. As we can see in Figures 3.6 and 3.7, the final amounts obtained are tilting towards the right, even though they approximate to the normal density estimate. From both the figures, it can be inferred that the actual receipt of final payments has the same magnitude in both systems and does not show any systematic deviation.

Figure 3.2 Disposition of time in conciliation



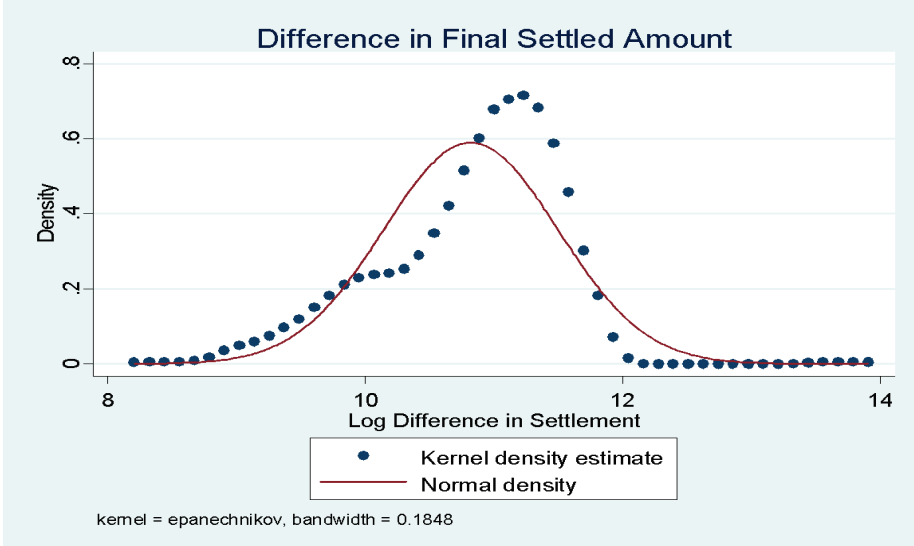
Source: Author's own calculations.

Figure 3.3 Disposition of time in labour court



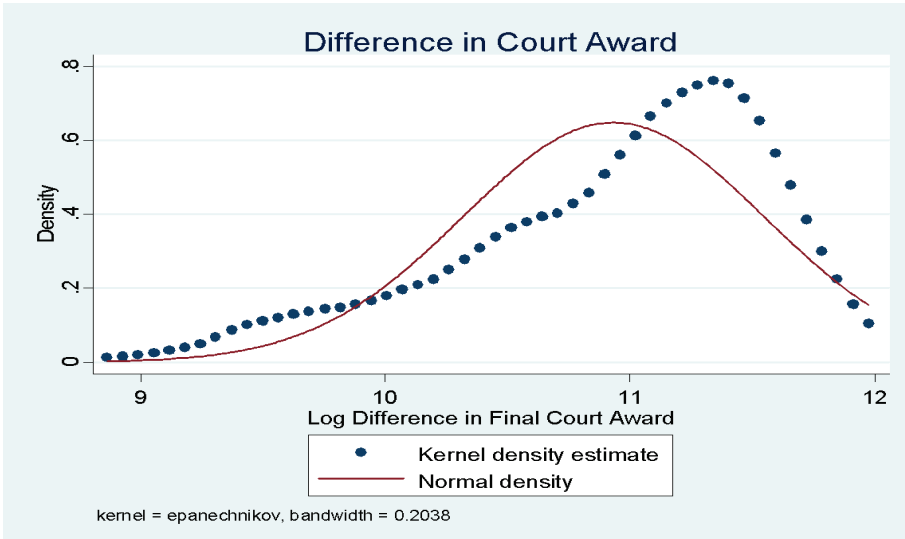
Source: Author's own calculations.

Figure 3.4 Difference in Final Settled Amount



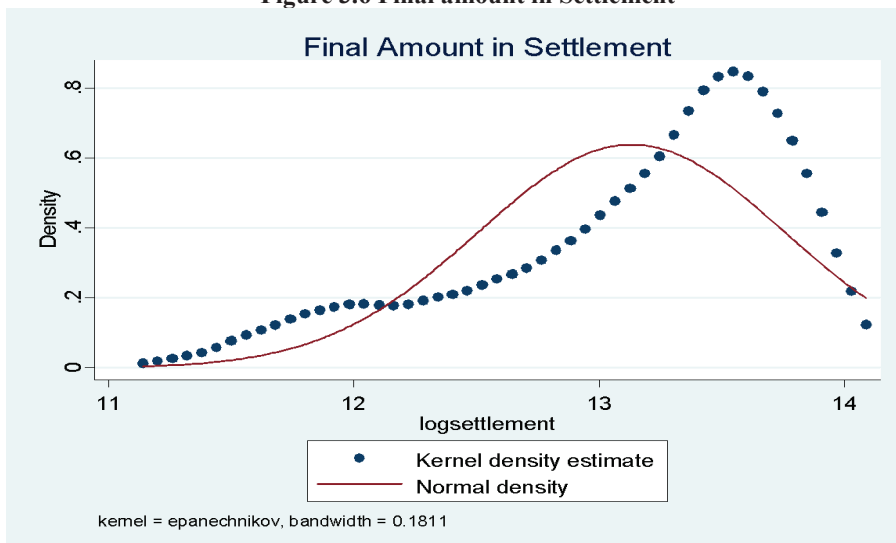
Source: Author's own calculations.

Figure 3.5 Differences in Court Award



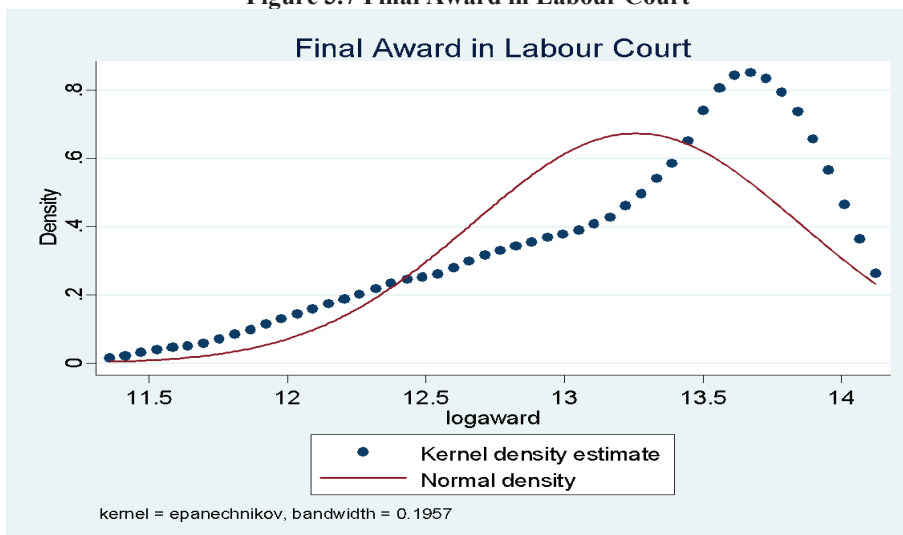
Source: Author's own calculations.

Figure 3.6 Final amount in Settlement



Source: Author's own calculations.

Figure 3.7 Final Award in Labour Court

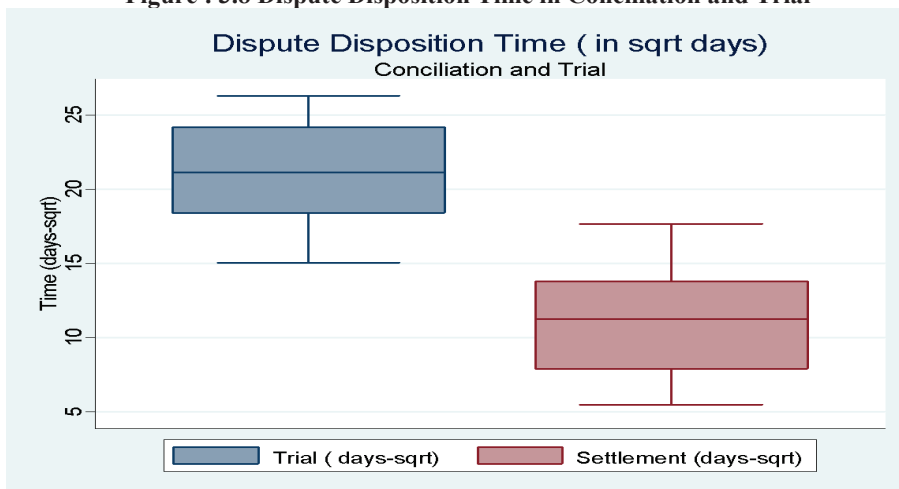


Source: Author's own calculations.

In Figures 3.8 to 3.10, the study presents a slightly different perspective on the outcome variables than those presented in Figures 3.2 to 3.7. Similar to the previous graphical exercise, instead of looking at the spread of outcome variables, the researcher here looks at the box plot of each variable of interests. In Figure 3.8, a subtle difference can be seen in the dispute disposition time. Overall, the median (a single bold line in the middle of the box) disposition time for disputes settled in conciliation is lower than the median disposition time for disputes concluded in labour courts. The two sub-groups are almost similar in terms of the spread between the 25th and 75th percentiles. In Figure 3.9, it can be seen that the median differences in final amounts to workers are almost similar in both methods and they have an equal spread at the bottom and top percentiles. The same equivalence is also revealed in figure 3.10, where the spread of box plots is almost similar in all dimensions. However, the median final amounts received in the labour courts are higher compared to the settled disputes.

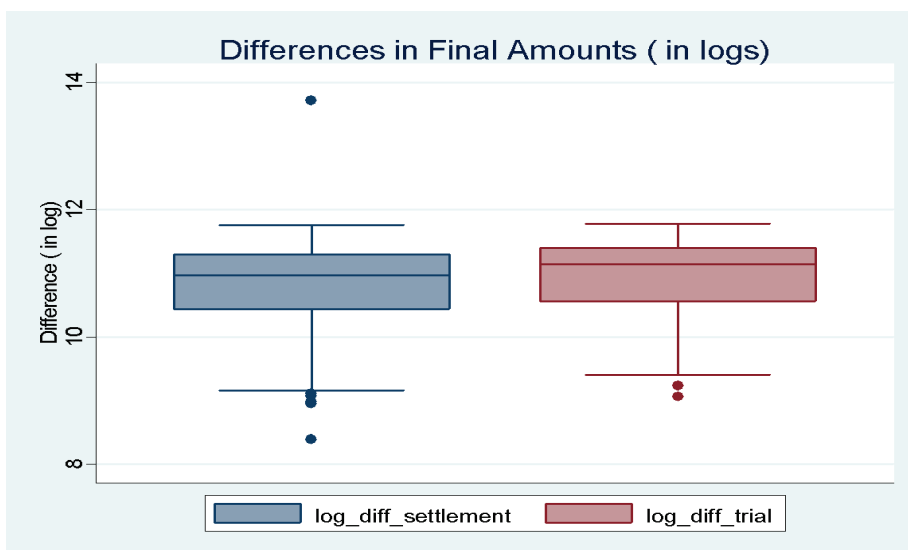
Taken together, the graphic exercise from Figures 3.2 to 3.10 and the preliminary results of summary statistics indicate that the average settled appeal took less time to conclude the case than the average appeal pursued to a court decision. What these figures and the table largely mask, however, is critical within group variations. Moreover, this analysis also presents a mixed picture for the plausible positive effects of differences in claims settled and the final payment received by workers. To address the statistical relationship between dependent variables and independent variables as the main observable determinants of legal claims in the next section, this chapter exploits the empirical strategy as explained in the previous section to test the proposed hypotheses.

Figure : 3.8 Dispute Disposition Time in Conciliation and Trial



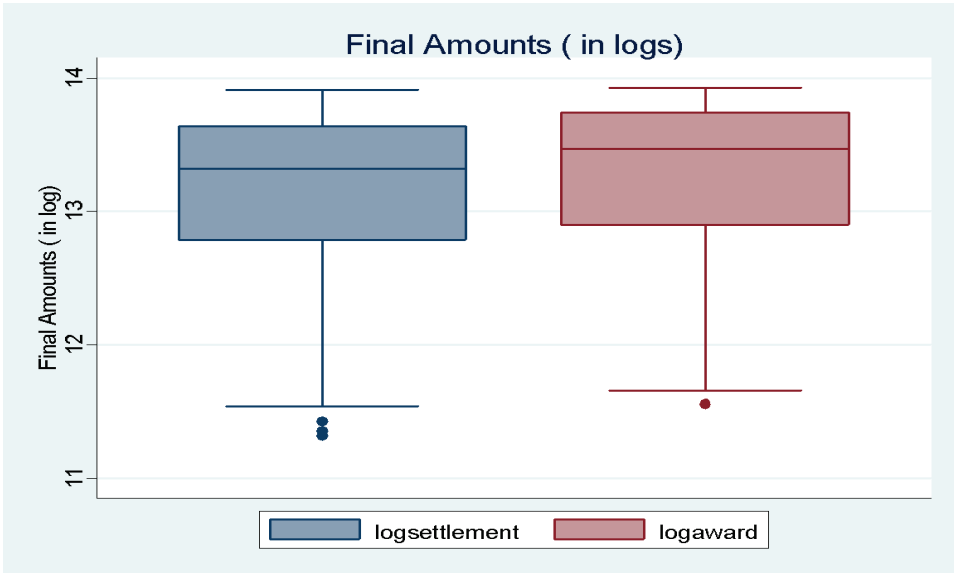
Source: Author's own calculations.

Figure:3.9 Differences In Final Amount Received In Both Conciliation And Trial



Source: Author's own calculations.

Figure 3.10 Final Amounts Received



Source: Author's own calculations.

3.5. Main results:

With the growing popularity of ADR programs and relatively little emerging literature on assessing the efficiency of ADR programs in several branches of legal disciplines, this chapter adds to the existing literature by investigating the efficiency of the conciliation method of resolving conflicts as against the traditional adjudication method. Table 3.3 reports the results of a simple ordinary least square model, estimating the relationship between independent variables and the dispute disposition time. The dependent variable is the total dispute disposition time in square days for both the mechanisms employed in Indian industrial relations to resolve labour conflicts. The key independent variables are the participation dummy that takes the value of 1, if cases are settled in conciliation and 0 in all other cases for the conciliation process, and the same dummy variable is assigned to

disputes proceeded and concluded in labour courts. The study also includes three other key independent variables that are relevant for the empirical analysis. Among them, the first variable is the worker's initial claim. The starting point for any legal battle is unsatisfactory conflict resolution mechanisms that are expected to be in place. In the matter of labour conflicts, if a worker's initial claims are not heard by his/her employers then it becomes the primary reason for the burgeoning tension between the employer and employee. Due to labour laws and national legislations that insulate workers' welfare, the workers' lobby enjoys the legal rights to raise their concerns with respective government authorities. It is a subject of debate whether the size of initial claims matters for the selection of a disputes resolution mechanism in labour conflicts or perhaps they randomly select particular mechanisms to redress their conflicts. Therefore, instead of addressing other aspects of initial claims as a potential cause of conflict, this chapter treats this variable as the main independent variable. The second important variable is the size of workforce that is employed in India's industrial disputes resolution systems. It includes the total number of judges posted in various labour courts and the total number of Conciliation Officers who are responsible for mediating the conflict resolution and refereeing them to the appropriate authorities (such as the government, labour courts and an independent arbitrator) for further reference.

The third independent variable is workers' actual tenure of employment in their respective firms. This variable is measured in log days. For any disputes to be raised under the Industrial Dispute Act of 1947, the total service tenure has to be more than 260 days in a year without any interruption in the employment contract. Uninterrupted service tenure strengthens the workers' position of being recognised as a regular worker or temporary worker.

To test the proposed hypothesis, Table 3.3 estimates the effects of the independent variables on the dependent variable. Column (a) in Table 3.3 shows that workers who participated in the conciliation process with their due claims tended to settle earlier than those whose claims proceeded in labour courts. The coefficient on participation dummy

is negative and significant at 1 percent. This implies that on an average, workers who participated in the conciliation process tended to settle their claims more promptly. However, disputes litigated in the labour courts also take less time compared to the conciliation process. The coefficient on participation dummy is negative but insignificant, thus the study rules out the possibility of disputes concluded in courts taking less time relative to the conciliation mechanism. Therefore, the results obtained from Table 3.3 support the proposed hypothesis and confirm that ADR participation reduces case disposition time.

Table 3.3: Effects on Dispute Disposition Time (Dependent variable- Disposition Time in Sqrt-days)

	Conciliation (Mandatory)	Appeal(Non-Mandatory Conciliation)
	(A)	(B)
Participation Dummy^a	-0.069** (0.331)	-1.224 (1.316)
Worker's Initial Claim (log)	0.009 (0.253)	0.386 (0.438)
Number of Judge's and Conciliation Officer's (Per 10000 population)	0.559 (93.60)	-12.258* (74.83)
Worker's Tenure (in log days)	-0.3975 (0.407)	-0.110 (0.687)
Constants	13.782*** (5.029)	19.285*** (8.318)
R-sqr	0.10	0.30
Number of Observations	150	287

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors are reported in parentheses. ^a participation dummy variable takes a value of 1 if the dispute is settled in the conciliation process (for column A) and it again takes a value of 1 if the dispute is resolved in the labour courts (for column B). All specifications include the CGIT and time specific fixed effects.

Table 3.4 reports the results obtained from estimating the impact of key independent variables on the final amount received by workers. This table also explains the nature of association between the determinants of legal claims and final settlement. Column (a) in table 3.4 indicates that disputes settled in a conciliation process positively correlate with the final payment received by workers. This also implies that settlement rates are positive in the conciliation process. The coefficient on participation dummy is positive and significant at 1 percent. Another interesting point is that workers' initial claims are also positively related to final payments. This positive relationship also indicates that all disputes settled in conciliation receive more or less the same settlement offer which is equivalent with the initial demand. Disputes appealed in the labour tribunal as indicated in column (b) of Table 3.4, conclude in a positive award, but however, the coefficient on participation dummy for appeal is insignificant. This could be due to procedural delays in the court ruling for the final award that sometimes reduces the real value of monetary claims that would be obtained in the future. However, this may not be true in cases settled in the conciliation process that are more flexible and prompt in concluding the labour disputes. Therefore, one can infer that settlement rates are positive and significant with conciliation compared to appeal in labour courts.

Table 3.4: Effects on Final Payments (Dependent variable- Final Payment in logs)

	Conciliation (Mandatory)	Appeal(Non-Mandatory Conciliation)
	(A)	(B)
Participation Dummy^a	0.228*** (0.741)	0.021 (0.012)
Worker's Initial Claim (log)	0.986*** (0.024)	0.001*** (0.004)
Number of Judge's and Conciliation Officer's (Per 10000 population)	2.180 (4.209)	2.292 (0.699)
Worker's Tenure (in log days)	0.006 (0.038)	0.009 (0.006)
Constants	-2.508*** (0.470)	--0.173** (0.077)
R-sqr	0.091	0.099
Number of Observations	150	287

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors are reported in parentheses. ^a participation dummy variable takes a value of 1 if the dispute is settled in the conciliation process (for column A) and it again takes a value of 1 if the dispute is resolved in the labour courts (for column B). All specifications include the CGIT and time specific fixed effects.

Table 3.5 estimates the effects of determinants of legal disputes on the difference in final legal claims received in conciliation and concluded in appeal with labour courts. As mentioned in the previous section, the conciliation process provides flexibility in procedure and always stimulates healthy dialogue between disputing parties with assistance from the Conciliation Officer. Due to the exchange of information in an amicable environment, parties in dispute can easily verify the merit of a legal claim and assess its legal standing. Therefore, differences in claims and counter-claims could be reduced through promoting negotiations, otherwise it would not be possible in labour courts. Column (a) in table 3.5 shows that the participation dummy is negatively associated with differences in the settlement amount received by workers. The coefficient

on participation dummy is significant. However, the participation dummy is positively larger in magnitude in column (b) of same table. This result implies that participation in conciliation significantly reduces differences in worker's initial claim and final settlement offer. This is due to the flexible approach of the conciliation process to dispute resolution that allows an exchange of information between parties and enables them to assess the merit of a legal claim.

Table 3.5: Effects on Difference in Final Payments (Dependent variable- Difference in Final Payment in logs)

	Conciliation (Mandatory)	Appeal(Non-Mandatory Conciliation)
	(A)	(B)
Participation Dummy^a	-0.218*** (0.812)	0.451 (1.531)
Worker's Initial Claim (log)	0.993*** (0.024)	0.990*** (0.008)
Number of Judges and Conciliation Officers (Per 10000 population)	2.156 (4.243)	3.033 (3.560)
Worker's Tenure (in log days)	-0.005 (0.039)	-0.055 (0.332)
Constants	-2.337*** (0.469)	-2.208*** (0.414)
R-sqr	0.092	0.087
Number of Observations	150	287

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors are reported in parentheses. ^a participation dummy variable takes a value of 1 if the dispute is settled in the conciliation process (for column A) and it again takes a value of 1 if the dispute is resolved in the labour courts (for column B). All specifications include the CGIT and time specific fixed effects.

In the light of the ADR theory predictions, results obtained from Tables 3.3 to 3.5 by pooling the dataset from two CGITs and over a time period between 2008-11, the study conjectures that disputes concluded in a conciliation process tend to reduce total disposition time, promote settlement and reduce differences in the final payments

received by workers. Therefore, the role of the conciliation process in resolving labour conflicts is indeed an efficient way to resolve labour disputes compared to adjudication in a labour court.

Now, the study assesses the effects of the amendment to the Industrial Dispute Act of 1947 that granted direct access to the labour court irrespective of conciliation proceedings. As mentioned in the introduction, there are claims that both support and argue against the amendments in the Act. However, there is an absence of significant empirical studies that prove that the conciliation method is inefficient in terms of resolving disputes. The study does not carry any presumptions about the validity of amendments or does not claim that an amendment is efficient or not. But rather it conducts an empirical investigation to assess cases settled or concluded in the post-reform period with those in the pre-reform period.

From Tables 3.6 to 3.8, the same empirical exercise was repeated with a slight modification. The dummy variable for participation is now focused on disputes that are concluded or settled in the post-reform period. Results obtained from Table 3.6 indicate that disputes settled in the post-reform period significantly reduced the total disposition time and the effect of the participation dummy is negatively correlated with the dependent variable. The same negative relationship can also be observed for disputes appealed in labour courts. The coefficient on participation dummy significant for conciliation implies that the process of conciliation has statistically significant correlation in reducing the disposition time. The results also corroborate with results obtained from the pool data in Table 3.3. Therefore, the study infers that the conciliation process of dispute resolution is significant and useful in reducing case disposition time.

Table 3.7 provides the results on the final payment received by workers in the post reform period. It is predicted that participation in ADR will promote settlement and the final offer received by workers will be positive. However, in the post-reform period, disputes settled in conciliation indicate a positive relationship with final payments received by workers and a negative relationship with final payments awarded in labour court. The coefficients on participation dummy variables for both sub-groups are

insignificant, implying that in the post reform period, participation in either process has no significant effect on the successful conclusion of labour disputes in conciliation or in appeal in the labour court.

Table3.6: Effects on Dispute Disposition Time (Dependent variable- Disposition Time in Sqrt-days)

	Conciliation (Mandatory)	Appeal(Non-Mandatory Conciliation)
	(A)	(B)
Participation Dummy^a	-3.089*** (0.375)	-0.2758 (0.570)
Worker's Initial Claim (log)	-0.107 (0.236)	0.416 (0.438)
Number of Judges and Conciliation Officers (Per 10000 population)	-12.613* (4.011)	-15.493* (7.246)
Worker's Tenure (in log days)	-0.096 (0.382)	-0.157 (0.688)
Constants	17.789*** (4.701)	20.718** (8.270)
R-sqr	0.12	0.27
Number of Observations	48	99

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors are reported in parentheses. ^a participation dummy variable takes a value of 1 if the dispute is settled in the conciliation process (for column A) and it again takes a value of 1 if the dispute is resolved in the labour courts (for column B).

Table 3.7: Effects on Final Payments (Dependent variable- Final Payment in logs)

	Conciliation (Mandatory)	Appeal(Non-Mandatory Conciliation)
	(A)	(B)
Participation Dummy^a	0.008 (0.131)	-0.005 (0.003)
Worker's Initial Claim (log)	0.490*** (0.008)	1.001*** (0.004)
Number of Judges and Conciliation Officers (Per 10000 population)	(0.957) (1.738)	-0.518 (0.720)
Worker's Tenure (in log days)	0.029* (0.143)	0.009 (0.006)
Constants	-0.253 (0.179)	-0.179** (0.771)
R-sqr	0.23	0.46
Number of Observations	48	99

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors are reported in parentheses. ^a participation dummy variable takes a value of 1 if the dispute is settled in the conciliation process (for column A) and it again takes a value of 1 if the dispute is resolved in the labour courts (for column B).

Table 3.8: Effects on Difference in Final Payments (Dependent variable- Difference in Final Payment in logs)

	Conciliation (Mandatory)	Appeal(Non-Mandatory Conciliation)
	(A)	(B)
Participation Dummy^a	-0.007 (0.030)	0.026 (0.331)
Worker's Initial Claim (log)	1.025*** (0.020)	0.989*** (0.025)
Number of Judge's and Conciliation Officer's (Per 10000 population)	-3.459 (4.049)	3.565 (4.469)
Worker's Tenure (in log days)	0.054 (0.033)	0.006 (0.040)
Constants	-2.196*** (0.418)	-2.318*** (0.481)
R-sqr	0.89	0.91
Number of Observations	48	99

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors are reported in parentheses. ^a participation dummy variable takes a value of 1 if the dispute is settled in the conciliation process (for column A) and it again takes a value of 1 if the dispute is resolved in the labour courts (for column B).

Table 3.8 presents the results obtained by estimating the effects of determinants of legal claims on the differences in final payments received by workers in the post reform period. Column (a) indicates that participation in conciliation reduces the differences between workers' initial claims and the settlement amount concluded in the negotiation process. On the other hand, disputes appealed in the labour court show a positive association between the workers' initial claims and the final amount awarded in labour courts. The coefficient of estimates exhibits predicted signs of association between the

participation variable with the dependent variable, however, strong results cannot be interpreted for the sample of cases concluded in the post reform period.

3.6. Conclusion:

For well functioning labour markets, the prevailing industrial relations system must provide an efficient dispute resolution mechanism that ensures a speedier disposal of labour conflicts and an effective settlement. Over the years, on the one hand, the traditional mechanism of adjudication of labour conflicts in labour courts has become inefficient and is often blamed for the reduction the welfare of the overall economy. On the other hand, there is a growing demand for alternative dispute resolution systems in various branches of the legal system. Using a standard law and economics framework of ADR theory, this chapter examined the theoretical predictions of ADR programs that aim to promote the settlement, a reduction in the differences of final payments and most importantly, a reduction in the case disposition time. The empirical analysis of this chapter is based on the micro dataset obtained from two Indian labour courts (CGITs) for the period 2008-2011. Results obtained from this study indicate that at the aggregate level, cases settled in the mandatory conciliation process tend to take less time than those cases appealed in the labour courts. Moreover, the study observes that labour disputes resolved in the mandatory conciliation process were settled more quickly as compared to disputes that participated in a non-mandatory conciliation process. Finally, the study argues that a mandatory conciliation process provides an efficient way to reduce the differences in the final payments received by workers, as it provides a time-bound negotiation space to disputing parties relative to other methods of ADR. Moreover, the study also confirms that the overall conciliation process succeeds in improving their settlement rates. The overall finding suggests that, the role of the conciliation process in the Indian labour dispute resolution system, is pivotal and it is indeed an efficient and effective method of resolving labour conflicts compared to adjudication.

Chapter Four

From Mother to Daughter:

Does Equal Inheritance Property Laws Reform Improve Female Labour Supply & Educational Attainments in India?¹⁷

4.1. Introduction:

The aim of this chapter is provide a robust empirical analysis of time series and cross section data from India to study how legal changes pertaining to the inheritance rights of women have an important impact on the labour market. They especially affect women's participation in the work force. Even though the principal policy target of legal reform was to end discrimination against women within the family by reforming inheritance law, the benevolent impact of such legal reforms stretches to other spheres for which they were not designed. This chapter is therefore an example and demonstration of the insight, that to improve conditions in one sector of the economy –here the labour market- one might have to change legal norms in quite another field of the law, here the family law.

In many countries across the developing world, women rarely hold secure rights to property, which could provide them with physical safety, and psychological security as well as incentives for them to participate in paid economic activities, as resulting income is not legally protected. The denial of women's rights to property takes the form of systemic gender bias in inheritance laws and laws restricting women's mobility which is nonetheless the principal source a woman can have at her disposal to improve her economic security and independence (RDI 2009). It is widely acknowledged that the inheritance laws are the principal legal instrument that grants women access to a family's

17. Note: This chapter was presented in the Annual Conference of Population Association of America, at San Diego, CA on 2nd May, 2015 and in the first International Conference on Law and Economics, organised by Gujarat National Law University (India), Indian Institute of Management Ahmadabad (India) and Indian Institute of Technology Kanpur (India) on 14th March 2015. The chapter was published as a journal article with Asian Journal of Law and Economics with the same title, in 6th June 2016. (DOI 10.1515/ajle-2015-0028) The published copy of this chapter is submitted to EDLE board.

wealth and bequests in the context of developing countries (World Bank 2012). It is also an important determinant of an individual's incentives for wealth creation, social mobility and access to labour market opportunities. While the underlying social and cultural dynamics are complex, legal reform to improve women's inheritance rights could potentially provide a low-cost way to reduce gender discrimination and improve a range of socio-economic outcomes for women (Agarwal 1995).

At a macro level, several policy efforts have been made to improve women's economic position relative to men, and to advance the policy targeted towards women on equity and economic efficiency grounds.

According to the World Bank Gender Equality and Development Report (2012), *“the most promising policies to increase women's voice in households centre on reforming the legal framework so that women are not disadvantaged in controlling household assets, land laws and aspects of family law that govern marriage, divorce, disposal of property and active labour market policies which are directed towards improving the women's labour force participation are particularly important”* (pg. 19). These concerted efforts have been successful in promoting equality in economic opportunity for women in developing countries. However, they have clearly underestimated the role of gender bias in inheritance laws that have constrained women's access to economic opportunities and have been affecting their capacities to participate in the labour market due to convoluted interactions of customary norms and statutory laws. Given this background, two natural questions arise- first, whether improvement in inheritance laws in favour of women could change their responses towards labour force participation and educational attainments. Secondly, how do the benefits of those changes translate into improved education of daughter's through intra-generational transfers of resources within the family?

Existing empirical evidence on the effects of reforms in inheritance laws in favour of women remains scant. On the one hand, the property rights literature is mostly gender neutral. A number of studies across the developing world have shown a correlation

between the actual female ownership of assets and better nutrition, health (i.e., mostly demographic indicators), and educational outcomes for their children (Smith et.al. 2003; Quisumbing and Maluccio 2003). There has also been a decrease in the incidence of domestic violence (Agarwal and Panda 2005). It should be understood that the evidence provided by these studies is not applicable to all countries. Household economics literature has looked at the relationship between family law and women's status almost exclusively in the context of developed countries (Chiappori et al. 2002). Moreover, many studies that have examined this question provide a quasi- unanimous consensus for the potential effect of changes in inheritance laws in favour of women and how those effects differ across both the developed and developing countries¹⁸.

This chapter will examine the effects of changes in inheritance property rights on labour force participation and educational attainments for women. To address the research question, the Indian context represents a unique setting to analyze the labour market effects of women's inheritance and to rekindle the debate on the gender dimension of labour markets in the present public policy discourse. Inheritance rights in India such as land and family rights are largely governed by the multiple and overlapping legal domains (i.e., the personal laws and community norms) with a complex interplay of customary and statutory laws. In the past two decades, India's economy has grown fast; the service sector has accounted for a large share of this growth (Shastry 2012). During this period, India has also experienced a sizable fertility decline, a rapid expansion of female education, and an overall empowerment of women (Agénor et.al. 2014; Pieters 2010). Despite these achievements, it is ironic that the reported female labour force participation is the lowest among other emerging markets, and is gradually declining since the period of economic reforms started in the 1990's (Pieters 2010). Recently, it is estimated that bridging the gender gap in the labour market will translate into an economic boost of 1.4 percent per year incremental GDP growth and this could add \$700

18. See Doss (2013) for a recent review of empirical and theoretical studies on property rights and women's economic development, and for the comparative analysis between developing and developed countries.

millions to India's GDP in 2025(MGI 2015). About 70 percent of the increase would come from raising India's female labour-force participation rate from the current 31 percent to 41 percent in 2025, bringing 68 million more women into the economy (Sen et.al. 2015).Hence, this topic deserves empirical scrutiny. It is important to note that several studies have identified factors such as the level of education, social status, household level characteristics, and labour market conditions that have had significant impact on the decision to participate in the labour market (ibid). These factors have succeeded in expanding the economic opportunities for women, but they have not undermined the social institutions that preclude the access to those opportunities. Among these factors, this chapter will focus on the biased inheritance property laws as an institutional factor which constrains women's decisions to participate in the labour market and their educational attainments.

India's inheritance property rights vary according to the religion or the geographical region one belongs to. In the year 2005, India witnessed a major constitutional amendment to the Hindu Succession Act of 1956 (hereafter the HSA), giving women a legal claim to inherit their parents ancestral bequest, dwellings and agricultural land. This law applies to the ancestral property of the Hindu undivided family, and does not apply to other property acquired by the parents. This law governs the inheritance rights of four religious communities, namely, Hindu, Buddhists, Jains and Sikhs; it does not extend to other religious communities such as Muslims, Christians, Parsis and Jews. Prior to the 2005 amendment, five states of India had amended this Act to eliminate gender inequality in inheritance in favour of women. The first attempts at amending this law came from the state of Kerala in 1976, Andhra Pradesh in 1986, Tamil Nadu in 1989, and finally, by the state of Maharashtra and Karnataka in 1994 respectively. This change has larger implications in the Indian context for raising the socio-economic status of women, and particularly, in improving their bargaining positions relative to men within, and outside the household. Any norms, customs or legal rules that prevent women from enjoying their rights to own and control a property severely affect their economic status. They also reduce incentives to participate in the

market activities. This is a serious concern for Indian women who were left with no such titles of property rights. It inhibits their capacity to engage in the market process. To eliminate this unequal structure of inheritance, five states out of the 28 states and 7 union territories, have subsequently amended the Hindu Succession Act of 1956. The subsequent state-wise amendments granted daughters of a dying Hindu interstate, independent inheritance rights. Using this plausible exogenous variation created by a legislative change in India's inheritance laws in favour of women; this paper examines the economic effects of equal inheritance property rights of women on the labour supply, and education levels by comparing the observed outcome between the reformed and non-reformed states. In addition, it also examines the potential effects of reform on the educational attainment of second generation female household members.

The HSA greatly improved women's ability to inherit property, thereby increasing their lifetime source of unearned income and their bargaining power within and outside the household. A household model of labour supply posits that an increase in unearned income decreases labour supply (Cahuc, Carcillo and Zylberberg 2014). According to this model, the income effect dominates the distribution rules within the household, holding other things constant (Chiappori et.al. 2002). This proposition is based on the theoretical model of cooperative bargaining in intra-household distribution which assumes that bargaining between the members of a household takes place on an equal footing and solutions to the model assume the attainments of Pareto optimality in household decisions (Becker 1981). However, this model has largely been challenged in recent studies (Hoel 2013; Robinson 2012; Duflo and Udry 2004; Agarwal 2002; and Kanbur et.al. 1994) which shows that the outcomes between husbands and wives are not necessarily efficient.

As against this cooperative model, the theoretical model based on non-cooperative bargaining relaxes many of these aforesaid assumptions, allows different preferences between individuals and recognizes asymmetry between the household members (Kanbur and Hadad 1994 ; McElroy and Horney 1981). In this model, the implied mechanism treats a change in the legal environment that allows women's access

to productive resources as a positive shock to distribution factors which impact upon intra-household bargaining (Heath and Tan, 2014). This positive shock allows women access to productive resources, maximizes her utility and control over her choices, so that her bargaining power goes up within a household. Under this model, an equal inheritance law as in our case, the amendment in the Act has, greatly increases women's ability to inherit property, which subsequently increases their unearned income in the current period or some unknown point in the future. This increase in women's unearned income also increases their autonomy, i.e., their control over income and improved bargaining position within the family¹⁹. Based on this theoretical premise, the research conjectures that in response to this improved position, the parents of a woman may have direct incentives to invest more in their daughter's education. This is likely to be affected by the reform, owing to the complementarities between education and female inheritance rights in relation to household property management, which directly affect their future household income. Secondly, a standard income effect predicts that an increase in unearned income decreases female labour supply, as she tends to substitute her total time spent on work with a greater consumption of leisure. This study allows the non-cooperative model to accommodate this effect to argue that women's unearned income also increases her autonomy, which in turn raises her effective wage and thus may increase her labour supply. Finally, increase in the bargaining power within a household also suggests that outcomes depend on who in the family receives certain income or owns the assets generating income. Hence, it is possible to conjecture that as mothers have a greater bargaining weight, intra-household decisions concerning human capital investments will reflect, to a larger extent, the preferences of women. It is well-documented that these preferences tend to be tilted towards the well-being of children, especially female children (Jensen 2012).

19. The autonomy effect of changes in legal environment that improves the bargaining power of household members within a household is extensively discussed in Heath and Tan (2014) and the country specific case studies for selected South Asian countries on land rights and women's empowerment have been discussed in RDI (2009).

To evaluate these effects, the study's identification relies on a Difference-In-Difference estimation strategy (D-I-D) to estimate the impact of reform in inheritance laws. The causal inferences are drawn from the empirical analysis by comparing mean educational attainment and female labour force participation between the younger and older women. Treatment of younger cohorts is assigned in reformed states, and their observed outcomes compared with older cohorts. The main underlying assumption is that in the absence of reform, the observed outcome for women across cohorts would not have been different in reformed and non-reformed states. Similar identification strategies have been used by Rosenblum (2015), Deininger, Goyal and Nagaraj (2013), Anderson and Genicot (2014), Roy (2011) and Lemieux and Card (2001).

Unit level data is used from two rounds of the Employment and Unemployment Survey of the National Sample Survey Organization (NSSO) conducted in 1999-2000 (55th round) and 2004-2005(64th round). The research study's empirical analysis is restricted to these two rounds and does not incorporate subsequent rounds of the NSSO conducted after the year 2005.

The main finding reported that women in states where reforms were implemented experienced positive effects on their labour force participation rate and educational attainments. This positive effect is also observed in their daughter's educational attainment. The results are much stronger for younger cohorts compared to older cohorts who were less likely to be affected by the reforms. The results obtained from this study corroborate our proposed hypothesis that improvement in inheritance property laws in favour of women, does indeed increase their labour force participation and educational attainments through enhancing their autonomy in the household decision making process. This improved position yields greater bargaining power and allows women to steer resource allocations in the preferred direction. The present analysis rules out the possibility of an increase in women's wellbeing in the absence of any systematic changes in the existing legal environment.

The study adds to the growing literature on the economic effects of property rights, and more broadly on the effects of institutional change on family economics. This study also complements other studies on India that have explored the economic effects of providing inheritance rights to women. From the policy perspective, this study appears to make a strong case for the need to strengthen legal institutions for protecting women's rights and enhancing their bargaining power.

The chapter is organized as follows: section 4.2 provides the background of previous studies. Section 4.3 describes the data and identification strategy for the study. Section 4.4 provides some preliminary evidences. Section 4.5 presents the main results on female education, employment and daughter's education. Section 4.6 provides robustness checks. The final section 4.7 offers a conclusion.

4.2. Previous studies:

It is widely recognized that any restriction on women's economic and property rights is likely to affect their bargaining power and also lead to significant productivity losses (Goldstein and Udry 2008). Lack of access to property rights that create incentives for investment either in physical capital or human capital tends to affect the economic outcomes and entrepreneurial activity across many developing countries (Panuzzi et.al. 2009). In addition, inheritance property rights which often constitute the main avenue for accessing property titles remains heavily biased against women (World Bank 2001). As a result, until now, the denials of property rights have severely increased women's hardships and increased their vulnerabilities (ibid). Earlier studies that have looked at the role of women's rights and economic development can be divided into two strands. In the first strand, large sections of literature have highlighted the importance of a direct transfer of resources to women and have studied their economic effects. When women inherit an equal distribution or share from their parental will in forms of intergenerational transfer, it enhances the individual capacity and stimulates the long term individual development (Deininger et.al. 2013; Becker and Tomes 1979). In the absence of this equal transfer, the relative impact of this gender disparity in economic outcomes could thwart the policy

efforts to realize the development goals of countries (World Bank 2012 and De Nardi 2004). Similarly, direct control over productive resources has shown a reduction in fertility rate (Eswaran 2002; Goldin and Katz 2002), an increase in workforce participation rate (Duflo 2008), an increase in investment in child care costs (Connelly 1992; Thomas 1990), and a reduction in domestic violence (Agarwal and Panda 2005) and in child mortality rate (Dyson and Moore 1983; Eswaran 2002). Through accumulating gains from the rising education level, and growth of white-collar services, more women could become part of the labour force and increase their earning capacity (Golding 1990; Mammen and Paxon 2000) and reducing social stigma against women's work (Klasen and Pieters 2013).

The second strand in the literature draws much attention to institutional changes that aim to strengthen the legal position of women in society, protect the entrusted rights given to women, and increase their bargaining power within existing social relations relative to men. For instance, legal changes in family law in Bangladesh led to an increase in the value of dowry and prenuptial agreements, when constitutional changes erected legal barriers to polygamy, and they decreased after additional divorce costs were imposed on men (Ambrus, Field and Torero 2009). In the US, the passage of unilateral divorce law changed the terms on which women could exit an existing relationship. Giving women an exit option led to a one-third reduction in domestic violence (Stevanson and Wolfers 2007), increased labour force participation of married and unmarried women (Stevenson and Wolfers 2007) and reduced investment in marriage specific capital (Chaiappori et.al 2002). This strand of the literature is largely based on the intra-household bargaining model which shows that the re-distribution of power within the household, in the light of changes in the legal environment, tends to have a favorable impact on women's development. This change according to the aforementioned studies, is equivalent to significant productive resource transfers to women.

In the context of India, studies assessing the impact of the HSA of 1956, show that amendments in inheritance legislation tend to generate enormous positive effect on increasing female asset endowments. Moreover, it is likely to bring about positive socio-

economic outcomes in favour of women. Panda and Agarwal (2005) examine the legal changes in HSA, and its consequent impact on a reduction in marital violence in the southern states of India. Roy (2010) shows that improvement in inheritance laws increases the mean female educational attainment by 1.1 to 1.3 years of schooling. In a similar vein, Rosenblum (2015) reports a causal impact on a reduction in child mortality and average fertility rates in reforming states as compared to non-reforming ones. Amidst the staggering incidence of violence against women, a study by Amaral(2013) concludes that improved inheritance rights decreased violence against women. The incidence of both family and non-family violence that affect women's autonomy, saw a decline in the face of reforms. Using a unique dataset on three generations, a study by Deininger et.al. (2010) examined the impact of amendments of HSA on physical and human capital investments. This study isolates the causal effect by exploring the variation in the timing of father's death, with household bequests of land to sons and daughters, in selective states of India. They report that the amendment significantly increased a daughter's probability of inheriting family wealth. Yet, substantial bias persists in allocating property rights to younger females, since the younger cohort enjoy a higher number of years of mean education than their older generations- an alternative channel of wealth transfer.

With a background of some understanding, it emerges that no study has investigated the impact of an improvement of HSA in favour women on labour force participation and educational outcomes (for both a mother and daughter) by taking into account the autonomy channel which reflects the increase in bargaining position within the household.

4. 3. Data and Identification Strategy:

4.3.1. Data:

In order to test whether the HSA reform had effects on female labour supply and educational attainments, we use data from two rounds of Employment and Unemployment Survey of the National Sample Survey Organization (NSSO) conducted in 1999-2000 (55th round) and 2004-2005(64th round). The NSSO surveys, which are representative at the state-district level and have an overall response rate of 94 percent, contain detailed information on household characteristic, individual information, activity status, debt information etc. This cross-sectional survey is the official source of nationally representative employment, and earning data used by the Government of India. From these surveys, the study focuses on the following variables: gender, education, age, family members, female labour force participation (principle status), wage income, non-wage income, household land holding, social category, religious category and marital status. As mentioned earlier, the Hindu Succession Act (1956) did not apply to Jammu and Kashmir (Agarwal 1994). Hence, it was dropped from the analysis. Smaller union territories like Lakshadweep, Andaman and Nicobar Islands and Puducherry (formerly known as Pondicherry) were also dropped from the analysis. For the purposes of the analysis, the focus was on Hindu women (this includes- Buddhist, Sikh and Jain women) who were wives of the heads of the households, and were at least 28 years of age at the time of survey. This ensured that women in the sample had completed their education and were also likely to be affected by the reform in reformed states. Non- Hindu women were excluded from the sample and the analysis to estimate the impact of inheritance property laws on educational attainments and female labour supply. The state of Kerala was also excluded from the analysis²⁰. Four reformed states namely, Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh were compared with the rest of India (comprising 30 Indian states).

20. The state of Kerala abolished joint the family property system altogether in 1976 in favour of an arrangement where irrespective of gender, all family members could hold their shares separately (Agarwal 1994). Inclusion of Kerala, might give us a biased estimate; since, the state has followed a different development path than the rest of the states in India (Sen 1990).

To estimate the impact of inter-generation transfer of reform benefits from mother to daughter, the same dataset was used with a restricted sample of Hindu women from reform states who had at least one daughter at the time of survey. The focus was on the age cohort of 6 years or less, at the time of reform i.e., 1994 to measure the intended effects of investment decisions on their daughter's education. Both waves of dataset were combined in order to have sufficient power to disentangle changes in educational attainments and the female labour supply behaviour of Hindu women, as well as to cover the periods before and after the reforms. Household level surveys were conducted by the government officials in the month of June 1999 for the 55th round and June 2003 for the 64th round. A sufficient lag between the reform year, and the time of survey, allowed the study to take into account the potential gap between the amendment and the implementation of the HSA, 1956. The dataset was collapsed by state and year of birth to obtain a state-cohort panel, and present cohort-level analysis (see next section for the description of age-cohort).

4.3.2. Identification Strategy:

This chapter follows the identification strategy of Rosenblum (2013); Deininger, Goyal and Nagaraj (2013); Anderson and Genicot (2014) and Roy (2010). Difference-in-Difference estimator (D-I-D) was employed using the state level reform as an exogenous variation. To measure the impact of the reform on educational achievements (measured in years of schooling), and female labour supply (measured in months of previous employment), the sample size was restricted to Hindu women who were at least 28 years old or more at the time of survey, in the four reformed states. Using this sample size, four possible age-cohort groups were constructed, who were exposed to the reform: cohort 1 included women aged between 28-35 years, cohort 2 included women aged between 33-40 years, and cohort 3 and 4 included women aged between 41-45 and 46-50 years respectively. Sample classification based on the age-cohorts ensured that exposure to the reform was jointly determined by a woman's year of birth and state of birth. Moreover, the age cohort classification enabled exploration of the benefit of reform; the reform was

likely to affect women's decision of schooling when they were at a school going age, and in the later years, on their decision to participate in the labour market.

As mentioned earlier, the identification strategy exploits the effects of reform on "treated" age cohorts. A "treated" group was defined as cohorts of women, who were of school going age when the reform was passed in their states. Secondly, it also included women who had daughters at the time of survey i.e., they were at least 28 years old, and had at least one daughter in her family. Hence, in the treated group, cohorts of women who were 10 years or younger at the time of reform were included. This was done because these women were young enough for the reform to affect their education choices; they also had at least one daughter at the time of the survey to indicate a transfer of benefits of reform from the mother to the daughter. The control group, on the other hand, consisted of all women who were out of school by the time of the reform i.e., they were 21 years or older, and had at least one daughter both in reformed and non-reformed states. The reform ought to have had low or insignificant effects on their educational achievement and labour supply. Thus, the observed outcome variables of treated groups in reformed states was compared with control groups in the reformed and non-reformed states.

Following Card (1994) and Roy (2010) in Table 4.1, the crux of using D-I-D framework for drawing causal inferences from the proposed identification strategy is presented. The identifying assumption in a D-I-D analysis is that controlling for observables, trends in women's educational attainments, and labour force participation, would have been the same between the control and the treatment groups, if the inheritance law reforms had not taken place. Table 4.1 addresses the validity of this assumption by comparing average observed outcome variables of reformed states to non-reformed states. In table 4.1, the average differences in indicators of educational attainments (measured in the average years of schooling), and labour supply (measured in the average month of previous employment), between the reformed and non-reformed states, and across age-cohort groups is reported. Panel A reports the full sample size of women across all age groups who were fully exposed to the reform experienced on an

average of 2.2 years of education. This was slightly higher compared to women not exposed to the reform; and had on an average 1.9 years of education. The observed difference is approximately 0.24 average years of education between the reformed and non-reformed states. However, the same benefits from the HSA reform, in reforming states, could be observed for the indicator on average months of work as compared to non-reformed states. Panel B and C are the main age-cohort groups, who were less than 10 years old at the time of the reform. Both groups are considered as ‘treated cohorts’ in this empirical investigation. The observed outcome of two groups with the cohort 3 and 4 (Panel D and E) was compared. This comparison is considered as a control experiment between two sets of cohorts: one cohort (the younger one), who were fully exposed to the reform, and other consists of those who despite residing in reformed states could not benefit from it. In the reformed states, the younger cohorts enjoy on an average 2.41 years of more schooling compared to the older cohort in reformed states. This comparison presents a falsification test for women who were born in the 1960s and 1970s- the members of this cohort (Panel D and E) would have left school by the time the reform was passed in their state, and hence they would not have experienced any effect.

Table 4.1: Mean Years of Education and Mean Months of Work: Birth cohort wise

	Reformed States	Non- Reformed States	Difference
Panel A: Aggregate (Full Sample)			
Mean Years of Education	2.226 (0.008)	1.984 (0.004)	-0.242 (0.008)
Mean Months of Work	4.135 (0.007)	3.862 (0.013)	-0.273 (0.016)
Panel B: Cohort 1 (Age 5 or less at time of reform)			
Mean Years of Education	6.593 (0.025)	1.993 (0.003)	-4.599 (0.035)

Mean Months of Work	10.849 (0.029)	3.988 (0.006)	-6.861 (0.061)
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Panel C: Cohort 2 (Age 6 to 10 at time of reform)

Mean Years of Education	6.250 (0.032)	2.018 (0.003)	-4.232 (0.046)
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Mean Months of Work	9.962 (0.035)	3.995 (0.006)	-5.966 (0.059)
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Panel D: Cohort 3 (Age 11 to 20 at time of reform)

Mean Years of Education	5.234 (0.021)	2.011 (0.003)	-3.223 (0.036)
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Mean Months of Work	9.688 (0.048)	4.030 (0.006)	-5.658 (0.078)
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Panel D: Cohort 4 (Age 21 years or more at time of reform)

Mean Years of Education	5.701 (0.019)	2.505 (0.003)	-3.196 (0.490)
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Mean Months of Work	9.371 (0.022)	4.281 (0.124)	-5.090 (0.063)
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Notes: Robust standard errors in parentheses are clustered at state level and all S.E. are significant at 1 percent.

The difference is quite large between the reformed and non-reformed states for the same group of cohorts. On the contrary, despite enjoying the premium over educational attainment, the younger cohorts fall short of 0.32years on an average in the employment duration as compared to the older cohort. From this simple analysis, it is inferred that the intended effect of reform in reforming states on treated cohorts is significant and substantially larger compared to those cohorts in non-reformed states who were not exposed to the HSA.

4.3.3. Econometric Framework:

The primary identifying strategy elaborated above is now extended to exploit the variation from all reforming states, by using the following form of liner quadruple regression framework:

$$Y_{s,c} = \alpha_s + \beta_c + \Omega_t + \delta_1 D_{s,c1} + \delta_2 D_{s,c2} + \delta_3 D_{s,c3} + \delta_4 D_{s,c4} + \varepsilon_{s,c} \dots\dots\dots (1)$$

The dependent variable ($Y_{s,c}$) denotes two variables- the mean years of education and the mean months of previous employment of a woman in state (s) belonging to cohort (c). We measure the mean years of education as the average years of schooling (from 0 years (illiterate) to 21 years (a Master's Degree and above)). In the NSSO survey in block 5, there was a question about the actual duration of previous employment. In the present study, this variable is used to measure the response of female labour supply in actual months (0-12 months). Let the reform be passed in year (c^*) in state (s). Then ($D_{s,c1}$) is a dummy indicating whether the Hindu woman belonging to the cohort who was aged 5 or less at the time of the reform in the given state. Similarly ($D_{s,c2}$) is a dummy indicating whether they were between 6 to 10 years old, ($D_{s,c3}$) is a dummy indicating whether they were between 11 to 15 years old, and ($D_{s,c4}$) is a dummy indicating whether they were between 16 to 20 years old respectively. The group consisting of cohorts of women, who were 21 years or older at the time of reform, constituted the category omitted from the analysis. (α_s) is a state fixed effect, (β_c) is a birth cohort fixed effect, (Ω_t) is birth year time trend and ($\varepsilon_{s,c}$) is the error term. To address the serial correlation concerns and to allow for heteroscedasticity the standard errors are clustered at the level of district (Bertrand et.al. 2004). This equation estimates the average impact on schooling, and on employability (in the later years) in the labour market after the reforms for the treatment cohorts relative to the control cohorts. It is important to consider the estimated effect of the reforms as the average intent-to-treat effect of implementing equal inheritance rights, since there may be a lag between implementation and behavioural change because it takes time for behavioural adaptation and knowledge diffusion across populations.

The main coefficients of interest are δ_1 and δ_2 which capture the effect of being exposed to improved inheritance rights on the younger cohorts. As mentioned in the previous section, improvement in the inheritance law in favour of women strengthens women's bargaining position in the household due to an increase in autonomy. This improvement, subsequently, reduces her fear of being disinherited from the property title. Thus, this improvement generates incentives for investment in human capital accumulation, and most probably increases her returns from the market activities. The oldest cohort (16-20 years old) is specially included as a falsification test. The members of this cohort would have left school by the time reform took place in their state. Hence, they may not have experienced large effects as compared to younger cohorts on their outcome variables.

So far, the study's main specification estimates the effects on first generation females who were exposed to the reform. But how does this exposure transmit into daughters' well-being? A potential concern with this specification is that, fathers who know that their daughters will inherit a greater amount of physical capital at their death may reduce the amount of education they provide to their daughters. This is quite relevant because human capital, in the form of education is a key tool for transferring wealth across generations. To account for this possibility, there is an analysis of the intergenerational transfer of human capital from mothers to daughters. There is a focus on the elementary education of girls who were less than 6 years old in 1994 so that their decisions would have been affected by the HSA 1956. This is in comparison to those who were 13 years or older in 1994. The latter implies that daughters who are 13 years or older would have completed their elementary education by then, and their schooling decision would not be affected by the Act.

The equation to be estimated then becomes:

$$Y_{s,c} = \alpha_s + \beta_c + \delta_1 F_{s,c} + \delta_2 F_{s,c} * V_j + \varepsilon_{s,c} \dots\dots\dots (2)$$

Where $(Y_{s,c})$ measures the mean years of education of daughters, born in state (s) belonging to cohort (c) , $(F_{s,c})$ is an indicator variable for married women, (V_j) is the indicator variable for a daughter who was less than 6 years old in 1994 and 0 otherwise. All other variables are defined above.

Before proceeding to the results, it is necessary to point out the problem of the possibility of omitted variables bias in our results as highlighted by Roy (2010). It is possible that reforms were passed in states that have a particularly pro-female bias; they might have passed additional legislation to assist women. There do not appear to be specific reasons for the location and timing of the reforms. For instance, there was not a particular party in power in all these states, at the time of amendment in the law. There are many civil society organizations actively working towards women's empowerment, but they are not particularly located in the reformed states. Another concern that arises with regard to potential bias is the possibility of systemic variation in the migration behaviour due to marriage or other factors, like migration to cities. However, according to the Census of India 2011 and 2001, overall inter-state migration in India is 5.9 and 4.8 percent of the total population²¹ respectively. Therefore, the possibility that the migration factor between the reformed and non-reformed states is likely to affect the results, is ruled out. The quadruple D-I-D analysis reduces such omitted variable bias; to account for any omitted pro-female variable bias in the estimates, it would have to differentially affect Hindu-women after the inheritance rights were passed in the reformed states.

21. Statistical Abstract of the Census of India, 2011 and 2001.

4.4. Preliminary Evidence:

Table 4.2 provides summary statistics of observed variables. If the treatment component from the sample is disregarded, then it can be observed that all women in the sample population enjoy on an average 2.22 years of educational attainment, and an average 4.13 months of employment duration. This summary figure is quite low compared to other emerging economies like China, Brazil, and many OECD countries (OECD 2014)²². The sample population is divided between the reformed states and non-reformed states. It can be seen that in the reformed states on an average, women experienced 2.2 years of educational attainments, and an average 4.13 months of employment. The sample is restricted to women belonging to the Hindu religion. The average years of education and the average months of employment variable turned out to be sufficiently larger in the reformed states than the non-reformed states. On an average, the Hindu women in the reformed states experienced 5.04 months of employment and 2.81 years of educational attainments.

Next, the treatment is assigned to Hindu women in the reformed states based on their age-cohort classification. From Cohorts 1 to 4, the average months of educational attainment show a decreasing trend. This implies that the estimated effect of reform is larger for the younger cohorts compared to the older one. For instance, Cohorts 1 and 2 indicate that the average years of schooling is 6.4 and 6.2 years respectively, whereas the same variable is 5 years of schooling for the older one (cohort 4). Figure 4.1 supports the validity of the observation by showing a trend of educational attainment of treated cohorts between the reformed and non-reformed states. The estimated line for the treated cohorts is higher in reformed states than in the non-reformed states after the 1980's. However, the difference appears to converge between the 1970s and the 1980s.

22. In China, the average years of schooling for women workers is 6.5 years of education and the female labour force participation is 52 percent (World Development Report 2013). Similarly in Brazil the average years of schooling for women workers is 8.2 years of education and the female labour force participation is 59 percent (World Development Report 2013).

Table 4.2: Descriptive Statistics

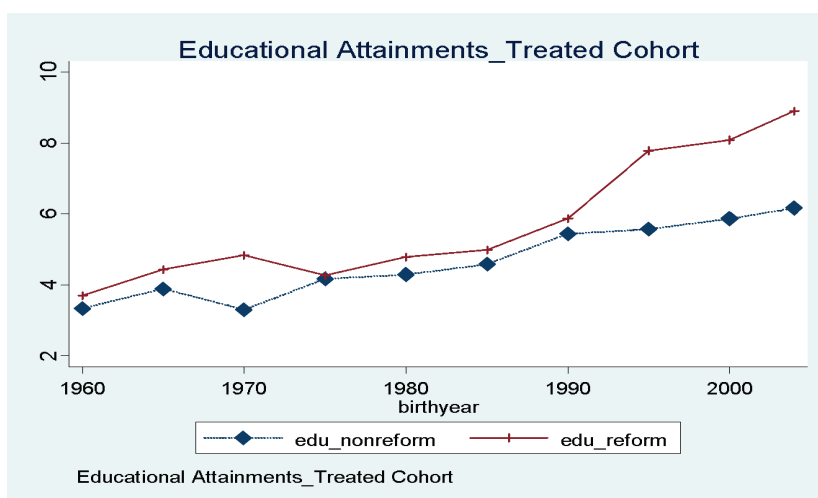
	Obs.	Mean	Std. Dev.	Min	Max
Full Sample					
Mean Years of Education	363846	2.037	3.238	0	21
Mean Months of Work	363846	4.072	5.502	0	12
Reformed States					
Mean Years of Education	166843	2.226	3.374	0	21
Mean Months of Work	166843	3.863	5.375	0	12
Hindu Religion					
Mean Years of Education	81087	2.815	3.507	0	21
Mean Months of Work	81087	5.036	5.708	0	12
Cohort 1 Aged 5 or less at time of reform					
Mean Years of Education	28480	6.593	2.334	0	10
Mean Months of Work	28480	9.962	3.273	1	12
Cohort 2 Aged 6 to 10 at time of reform					
Mean Years of Education	34862	6.250	2.254	0	10
Mean Months of Work	34862	9.208	3.392	1	12
Cohort 3 Aged 11 to 15 at time of reform					
Mean Years of Education	33425	6.115	2.267	0	10
Mean Months of Work	33425	8.590	3.328	1	12
Cohort 4 Aged 16 to 20 at the time of reform					
Mean Years of Education	32168	5.853	2.222	0	10
Mean Months of Work	32168	7.235	3.263	1	12
Household Level Control Variables (Non-Reform States)					
Household Size	197003	3.149	2.300	0	9
Household Land Holding	197003	2.800	2.282	0	10
Male Education	197003	2.722	3.853	0	21
Male Income	197003	4.185	4.900	0	18

Other Family Income	197003	6.251	0.637	1	17
Household Level Control Variables (Reform States)					
Household Size	166843	2.778	2.129	0	9
Household Land Holding	166843	2.203	2.278	0	9
Male Education	166843	2.942	3.875	0	21
Male Income	166843	3.460	3.576	0	18.
Other Family Income	166843	6.342	0.630	2	14

Source: Author's own calculations from NSSO unit level data.

Once the four states amended the HSA in favour of women, it is seen that the educational attainments between the reformed and non-reformed states begin to diverge. In the 1980s, the massive campaign for female empowerment and the overall state policy response towards a gender concern minimized the difference between the educational attainments in both categories of Indian states. Along with this spirited campaign for women's empowerment, amendment to the HSA in four states would have complemented the state's policy effort towards women's development.

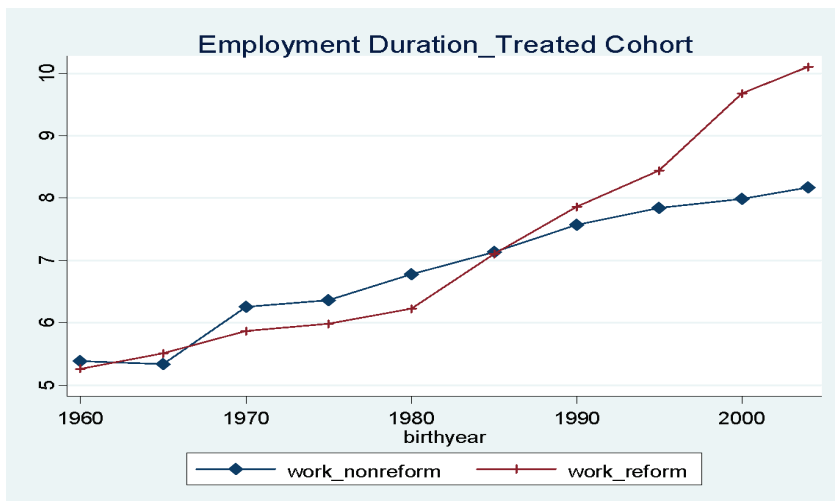
Figure 4.1: Educational attainments: Treated Cohort



Source: Author's own calculations based on NSSO data.

The effects of treatment on improving employment prospects for women, who were exposed to the reform, do show some marginal improvements (see Figure 4.2). The average duration of employment for the treated cohort in reformed states is slightly higher than cohorts in non-reformed states, although the difference between the reformed and non-reformed states is not as large as it is being indicated for educational attainments. In this case, it is possible that women who benefited from the HSA reform through advancing their educational status may have enjoyed better labour market prospects than those women who did not have high educational status.

Figure4.2: Employment Duration: Treated Cohort



Source: Author’s own calculations based on NSSO data.

This trend also indicates that social norms and customs could be discouraging factors that prevent women from working outside their homes since it is a matter of family prestige and social status. As they witness increasing returns from their education and lack of stigma to white collar jobs, the workforce participation for women could be pulled back (Klassen and Pieters 2013; Eswaran et.al. 2011).

4.5. Results:

4.5.1. Effect on Female Educational Attainments:

This section estimates the effects of equal inheritance law reform on female education attainments. The aggregate estimated result of equation (1) is reported in Table 4.3. While aggregating the estimated coefficients the focus was on women from the Hindu religious group in the reformed states who were aged 28 years at the time of the survey. In column (1), without controlling for any effects or trends, the estimated coefficients for all Hindu women sub-sample are positive and significant. It shows that on an average, Hindu women who have benefited from the reform have experienced an average 4.6 years of schooling at the time of the reform as compared to women from other religious groups in reformed states. However, once the state fixed effects, cohort fixed effects, and birth year trend (in column 4) were controlled, the predicted results turn out to be positive and statistically significant. The initial assessments are consistent with the proposed proposition that the equal inheritance property law reform has significant effect on the decision to invest in women's education.

Table 4.3: Effect on Mean Years of Education (Full Sample)

	Mean Years of Education (1)	Mean Years of Education (2)	Mean Years of Education (3)	Mean Years of Education (4)
Hindu Women (Dummy Variable)	4.663*** (0.209)	4.872*** (0.230)	5.142*** (0.250)	5.155*** (0.248)
Constants	1.930*** (0.060)	1.027*** (0.413)	1.205*** (0.420)	1.946*** (0.446)
State FE	NO	YES	YES	YES
Birth Year Trend	NO	NO	NO	YES
Adjusted R-sqr	0.04	0.07	0.07	0.07
Observations	363846	363846	363846	363846

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors in parentheses are clustered at state level

Proceeding further, the overall educational attainments across religion and birth cohort in reform states show positive effects on women's educational attainments.

Table 4.4: Effect on Mean Years of Education (Hindu Sample)

	Mean Years of Education (1) Hindu	Mean Years of Education (2) Hindu	Mean Years of Education (3) Hindu	Mean Years of Education (4) Hindu	Mean Years of Education (5) Non-Hindu
Age 5 or less at the time of reform	5.586*** (0.346)	6.017*** (0.353)	6.131*** (0.361)	6.127*** (0.361)	-1.398*** (0.127)
Age 6 to 10 at the time of reform	5.235*** (0.325)	5.666*** (0.336)	5.855*** (0.344)	5.853*** (0.344)	-1.319*** (0.128)
Age 11 to 15 at the time of reform	5.140*** (0.304)	5.571*** (0.310)	5.754*** (0.318)	5.752*** (0.318)	-1.328*** (0.123)
Age 16 to 20 at the time of reform	4.902*** (0.328)	5.333*** (0.343)	5.561*** (0.349)	5.559*** (0.348)	-1.277*** (0.128)
Constants	1.272*** (0.065)	0.533*** (2.01)	0.636*** (0.302)	1.778*** (0.078)	0.717*** (0.080)
State FE	NO	YES	YES	YES	YES
Cohort FE	NO	NO	YES	YES	YES
Birth Year Trend	NO	NO	NO	YES	YES
Adjusted R-sqr	0.03	0.05	0.06	0.06	0.02
Observations	81087	81087	81087	81087	197003

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors in parentheses are clustered at state level

Even after controlling, the average years of schooling is 5.1 for cohort 1, and 4.6 years for cohort 4. Interestingly, the effects get smaller as one considers the potential effects on older cohorts. This is also consistent with the expectation that the older cohorts would

have been out of school at the time of reform. Thus, the parents' decision to invest in their daughter may not have been motivated by the benefits of reform for older cohorts. Then, one could ask why the older cohorts seem to benefit from the reforms, when the intended treatment was not meant to affect them. A potential explanation could be offered to explain this effect. Failure in the primary and secondary grades is a common phenomenon in the Indian education system. Students who failed in class continue with their grades at an older age. Accounting for this fact makes it possible that even older cohorts would have benefited from this reform (Duflo et al. 2008). Therefore, it can be argued that the parents of a woman may have direct incentives to invest more in their daughter's education, and that they are likely to be affected by the reform, owing to the complementarities between education and female inheritance rights in relation to household property management, which directly affects their future household income.

Table 4.4 presents the effects of HSA reform on Hindu women. In column (1), without controlling for any effects, the average effects on educational attainments are positive. Women from Cohort 1 enjoyed on an average 6 years of education, and cohort 2 women enjoyed on an average 5.3 years of education in the reformed states. Once the effects were controlled, the estimated size of the effect again appeared to be positive for the treated cohorts, who have enjoyed 6.1 and 5.8 years of education attainment, in the reform states respectively (column 4). It may be noted that all cohort groups among Hindu women seem to have benefited from the reform; however, the estimated magnitude of the coefficients gets smaller as we move down to the older cohorts. A young cohort 1 of women, aged less than 5 years at the time of reform, experienced approximately 0.6 years more of education than the older cohort 4, who were more than 16 years of age at the time of the reform. The quantitative differences seem to indicate that the effect too low to suggest any positive difference between the educational attainment of the younger and older cohorts. However, these 0.6 years of difference could be a decisive factor in the job market, the marriage market, or even for social status. For instance, having a daughter who had completed primary education, makes a family more proud than when they have qualifications below the primary level. Similarly, having a

daughter who had completed higher education is more prestigious for her family, and for her prospective in-laws²³ and she is considered as an asset in the family who would contribute towards the family resources till she gets married.

Apart from using the state, trend and cohort fixed effects, as an additional robustness check, there is an estimate of the effects of reform on non-Hindu women in the reform states. The reforms were aimed at improving the economic status of Hindu women and eliminating the persistent bequest inequality in the Hindu Joint family system. However, it wasn't intended to affect the economic status of other women. In the revised estimate presented in Table 4.4, we treat the same cohorts among the non-Hindu sample in the reformed states. Column 5 indicates that the true effect of reform is negative across all cohorts. Despite controlling for fixed effects, the magnitude of coefficients is approximately a reduction of 1.3 years in average years of schooling. This effect could be because after the Hindu population, the second largest sample population is that of Muslim women, who have an average 2.4 years of schooling. Muslim women in India are historically marginalized both in the social and household spheres due their minority status. There seems to be a lack of policy for uplifting the overall status of Muslim women (Government of India 2005). Therefore, an overall decline in education could be due to ignorance of targeted public and social policy, which were aimed to improve the wellbeing of Muslim women.

4.5.2. Effect on Female Employment:

In this section, the effects of reform on female employment from equation (1) are re-estimated. In table 4.5, we present the aggregated results of all women belonging to the Hindu religion in the reformed states. Column (1) in Table 4.5, presents the results without controlling for cohorts, trend and state fixed effects. On an average, all women

23. A section of literature on human capital theory has been devoted to study the role of school education in improving marriage market prospects to analyse how female labour supply responds to changes in marriage market conditions. A detailed discussion on this topic can be found (Bertrand et.al 2014; Chiappori, Iyigun and Weiss 2008; Blau, Kahn and Waldfogel 2000).

belonging to Hindu religion enjoyed 6 months of employment relative to women from other religious groups in the reformed states. However, once controlled for cohorts, birth year trend and state fixed effects, the effects continued to be positive and significant for women belonging to the Hindu religion as compared to non-Hindu women in the reformed states. This positive effect on employment outcome is largely driven by expected positive returns from engaging in paid labour market activities. This development can be ascribed to an increase in women’s unearned income through the HSA reform that led to an increase in autonomy. As per the proposed hypothesis, an increase in women’s autonomy raises her effective wage and thus may increase her labour supply as she holds bargaining power to allocate resources and steer that allocation in her preferred direction which yields maximum returns to her choices. Table 4.6 reports the effects of reform on Hindu women. In column (1), the estimated effect of equal inheritance reform is positive, and is slightly higher compared to table (4.5). Cohort 1 females enjoy, on an average, 7.4 months of employment exposure, and cohort 2 enjoys 7.03 months of average employment exposure. Compared to younger cohorts, the positive effect is also extended to the older Hindu female cohorts.

Table 4.5: Effect on Mean Months of Employment (Full Sample)

	Mean Months of Employment (1)	Mean Months of Employment (2)	Mean Months of Employment (3)	Mean Months of Employment (4)
Hindu Women (Dummy Variable)	6.070*** (0.173)	6.930*** (0.190)	7.607*** (0.241)	7.595*** (0.241)
State FE	NO	YES	YES	YES
Birth Year Trend	NO	NO	NO	YES
Adjusted R-sqr	0.03	0.06	0.07	0.07
Observations	363846	363846	363846	363846

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors in parentheses are clustered at state level.

Upon using fixed effects, the magnitude of coefficients gets larger for all Hindu women cohorts. Cohorts 1 and 2 enjoy on an average 8.5 and 8.3 months of employment exposure respectively, and the mean difference of employment duration for control and treated group is 0.10 months.

Table 4.6: Effect on Mean Months of Employment (Hindu Sample)

	Mean Months of Employment (1) Hindu	Mean Months of Employment t (2) Hindu	Mean Months of Employment (3) Hindu	Mean Months of Employment t (4) Hindu	Mean Months of Employment t (5) Non Hindu
Age 5 or less at the time of reform	7.411*** (0.113)	8.269*** (0.067)	8.575*** (0.120)	8.574*** (0.120)	2.929*** (0.056)
Age 6 to 10 at the time of reform	7.095*** (0.130)	7.953*** (0.101)	8.287*** (0.147)	8.287*** (0.147)	2.897*** (0.061)
Age 11 to 15 at the time of reform	7.275*** (0.131)	8.133*** (0.898)	8.373*** (0.147)	8.373*** (0.147)	3.008*** (0.069)
Age 16 to 20 at the time of reform	7.232*** (0.082)	8.181*** (0.091)	8.405*** (0.847)	8.405*** (0.151)	3.02*** (0.0712)
Constants	2.615*** (0.082)	0.744*** (2.20)	0.847*** (0.750)	0.393*** (0.082)	2.726*** (0.057)
State FE	NO	YES	YES	YES	YES
Cohort FE	NO	NO	YES	YES	YES
Birth Year	NO	NO	NO	YES	YES
Trend					
Adjusted R- sqr	0.03	0.04	0.05	0.06	0.01
Observations	81087	81087	81087	81087	197003

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors in parentheses are clustered at state level.

In addition to fixed effects, the study used a non-Hindu subsample for an additional robustness check. Column 5 shows that the reform, aimed to improve Hindu women's economic status, is positively associated with the employment outcome of non-Hindu women. Although the magnitude of the coefficient is very small and far lower than those coefficients in Hindu women's, this effect suggests that the reform could have improved the bargaining position of Hindu women relative to women from other social groups. Therefore, Hindu women have been in a better position to access the opportunities offered by the labour market, whereas such accessibility was not extended to those women who were not exposed to the reform process. As a result, the labour market opportunities which have been open for all women workers could have been captured by the Hindu women relative to non-Hindus due to their comparative advantage of improved bargaining power in the household. It is interesting to note that the general trend reflects a U-shape experience in the labour market. For instance, for the younger cohort 1, the employment duration is high. As one moves down, the estimated effects get smaller for two cohorts (2 & 3), and it again increases for the older one. This is consistent with the "U-Shape" trend, where it can be argued that at a younger age, women are more productive, and are not constrained due to issues of their reproductive health or any family commitments for child birth. As they grow older, due to responsibilities of familial responsibilities, they withdraw their active participation from the market. Again, they return to their activity once their children grow older.

4.5.3 Effects on Daughter Education Attainment:

The previous two sections presented the empirical evidence of the effects of equal inheritance property laws on Hindu women's educational attainment and employment outcome. In this section, we will present the evidence on the educational attainment of daughters, whose mothers were exposed to the reform in reforming states. Results from the estimating equation (2) for daughters, who were at the age of 6 or less, at the time of reform in 1994, are presented in Table 4.7.

Table 4.7: Effect on Daughter’s Education

	Mean Years of Education (1) (Hindu Sample)	Mean Years of Education (2) (Hindu Sample)	Mean Years of Education (3) (Hindu Sample)	Mean Years of Education (4) (Hindu Sample)	Mean Years of Education (5) (Non Hindu Sample)
Less than age 6 at the time of reform	4.328*** (0.141)	4.187*** (0.143)	5.381*** (0.111)	5.381*** (0.111)	1.342*** (0.091)
Constants	1.226*** (0.07)	0.363*** (1.31)	0.559*** (0.02)	0.817 (0.09)	0.716*** (0.89)
State FE	NO	YES	YES	YES	YES
Cohort FE	NO	NO	YES	YES	YES
Birth Year Trend	NO	NO	NO	YES	YES
Adjusted R- sqr	0.03	0.05	0.06	0.06	0.03
Observations	8210	8210	8210	8203	11568

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors in parentheses are clustered at state level

Column 1 shows that, without controlling for any effects, the daughters of Hindu women who were exposed to reform experience on an average 4.3 years of education as compared to the older female child cohort (i.e. cohort of girl children who were 13 years of old)in the reformed states. However, once we controlled for state, birth cohort and birth year fixed effects, the educational attainment of girls increases with an average 5.4 years of primary and upper primary schooling. In addition to fixed effects, there is a non-Hindu sub-sample for the additional robustness check. This additional empirical exercise is useful to know whether the intended effects of reform were actually transferred to

daughters in the Hindu sample. Using the same age cohorts of girls from the non-Hindu sub-sample in column 5, it was found that after controlling for fixed effects, a younger cohort (aged between 6 to 10 years) experiences 1.3 fewer years of education, compared to the older cohorts of the non-Hindu sample in the reformed states. Therefore, it can be argued that with increased autonomy in the family, women who were exposed to the reform prefer to invest in their daughter's education. This observation is very well documented in many other developing countries. India has one of the poorest male / female ratios in the world. According to the Census of 2011, there were 940 females for 1000 males. Family and social relations in Indian society are largely shaped by patriarchal norms. Up to now, a male child is preferred over a girl child due to conservative social norms, cultural values and orthodox beliefs assigned to male roles in the family. Owing to these cultural barriers, women's autonomy or independence in almost all Hindu families is more or less curtailed. Such restriction is expanded to their reproductive health whereby a husband and his family members decide whether to have a child or not, and how many children they could have. In all decisions, the family assigns a preference to a male child without even considering the woman's say in the decision to have a baby (Rosenblum 2015). As per the theoretical framework, the amendment in inheritance laws gives more autonomy to women through providing some source of income. This autonomy, in turn allows women to have a say in their reproductive health matters. While allocating the family resources, a female child receives little or no share compared to male children. To eliminate such sexual discrimination, it is assumed that a mother would prefer to invest in her daughter's education.

4.6. Robustness Checks:

In this section, three robustness checks for the empirical results obtained in the previous section are provided. The first robustness check involves controlling for household level covariates for educational attainments, and labour supply. The second exploits, after controlling for household level covariates, the religious differences among women. And finally, a placebo test was applied to see whether the coefficient estimates are mistakenly picking up trends in educational attainments, and employment that were independent of

reform. In this test, we restrict the sample to Hindu women born in the 1970's, when education attainment and employment should be unaffected by the later changes in inheritance laws. This test treats 1965 as the year from when the inheritance laws were implemented.

Table 4.8 presents the robustness of results on the effects on HSA on educational attainments. In Columns 1 to 4, the use of household level covariates, and other fixed effects shows that re-estimated results are almost similar to those obtained in table 4. However, the magnitude of coefficients for treated young cohorts is marginally higher as compared to the full sample. A young Hindu female who belonged to cohort 1 and cohort 2 experienced on an average, 4.8 and 4.5 more years of schooling in reformed states, than those young cohorts who were in non-reformed states. Column 5 in the same table reports the results for non-Hindu women. The estimated robust effect is positive but quite small. This estimation, to some extent, would rule out the possibility of prevalence of common trends in female education across religions. In column 6, a placebo test was used to see whether the predicted results are the true effect of reform, or whether it was driven by a common trend in the educational attainment of women. Using hypothetical birth cohorts, the study infers that estimated effects are true effects of reform, and are not driven by the general trend. The estimated coefficients are insignificant and positive.

Table 4.8: Robustness Checks- Female Education

	Mean Years of Education (1) (Hindu Sample)	Mean Years of Education (2) (Hindu Sample)	Mean Years of Education (3) (Hindu Sample)	Mean Years of Education (4) (Hindu Sample)	Mean Years of Education (5) (Non Hindu Sample)	Mean Years of Education (6) (Hindu Sample Placebo Test)
Age 5 or less at the time of reform	4.541*** (0.396)	4.633*** (0.628)	4.747*** (0.637)	4.755*** (0.632)	2.575*** (0.275)	0.873 (0.830)
Age 6 to 10 at the time of reform	4.192*** (0.365)	4.296*** (0.550)	4.513*** (4.310)	4.522*** (0.557)	2.442*** (0.352)	0.755 (0.861)
Age 11 to 15 at the time of reform	4.083*** (0.354)	4.111*** (0.581)	4.310*** (0.606)	4.318*** (0.601)	2.443*** (0.427)	0.451 (0.743)
Age 16 to 20 at the time of reform	3.839*** (0.376)	3.826*** (0.623)	4.190*** (0.612)	4.198*** (0.608)	2.470*** (0.317)	-
Household Size	0.028 (0.134)	0.114 (0.147)	0.108 (0.152)	0.109 (0.151)	0.080 (0.156)	0.111 (0.151)
Landholding	0.144 (0.177)	0.877** (0.329)	0.879** (0.329)	0.877** (0.328)	0.946** (0.346)	0.895** (0.332)
Male- Education	-0.010** (0.048)	-0.458*** (0.095)	-0.620*** (0.099)	-0.624*** (0.099)	-0.633*** (0.102)	0.523*** (0.499)
Male-Income	-0.259*** (0.069)	0.137 (0.117)	0.346*** (0.120)	0.351*** (0.121)	0.324** (0.128)	0.359*** (0.122)
Constants	2.074*** (0.634)	4.000*** (0.430)	6.432*** (0.418)	4.936*** (0.505)	5.132*** (0.541)	1.328*** (0.031)
State FE	NO	YES	YES	YES	YES	YES
Cohort FE	NO	NO	YES	YES	YES	YES
Birth Year Trend	NO	NO	NO	YES	YES	YES

Adjusted R-sqr	0.19	0.29	0.30	0.30	0.27	0.25
Observations	62188	62188	62188	62188	62188	62188

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors in parentheses are clustered at state level

Table 4.9 Robustness Check-Female Employment

	Mean Months of Employment (1) (Hindu Sample)	Mean Months of Employment (2) (Hindu Sample)	Mean Months of Employment (3) (Hindu Sample)	Mean Months of Employment (4) (Hindu Sample)	Mean Months of Employment (5) (Non Hindu Sample)	Mean Months of Employment (6) (Hindu Sample Placebo Test)
Age 5 or less at the time of reform	6.345*** (0.280)	6.611*** (0.632)	6.787*** (0.661)	6.801*** (0.659)	-3.794*** (0.297)	2.060 (0.170)
Age 6 to 10 at the time of reform	6.044*** (0.262)	6.318*** (0.494)	6.562*** (0.536)	6.578*** (0.532)	-3.679*** (0.430)	2.215 (0.166)
Age 11 to 15 at the time of reform	6.188*** (0.284)	6.345*** (0.650)	6.529*** (0.712)	6.544*** (0.707)	-3.734*** (0.553)	2.73 (0.167)
Age 16 to 20 at the time of reform	6.21*** (0.303)	6.303*** (0.678)	6.628*** (0.683)	6.644*** (0.679)	-3.899*** (0.396)	-
Household Size	-0.080 (0.203)	-0.132 (0.227)	-0.132 (0.232)	-0.134 (0.232)	-0.088 (0.240)	-0.136 (0.232)
Landholding	0.373 (0.293)	1.473** (0.537)	1.472** (0.540)	1.468** (0.539)	1.569** (0.563)	1.494** (0.544)
Male- Education	-0.120 (0.078)	-0.627*** (0.144)	-0.764*** (0.157)	-0.772*** (0.158)	-0.781*** (0.168)	-0.785*** (0.159)

Male-Income	-0.463*** (0.124)	0.099 (0.186)	0.276 (0.203)	0.286 (0.205)	0.242 (0.222)	0.296 (0.207)
Constants	3.062*** (0.965)	5.410*** (0.663)	7.181*** (0.651)	4.362*** (0.959)	4.697*** (0.901)	3.993*** (1.00)
State FE	NO	YES	YES	YES	YES	YES
Cohort FE	NO	NO	YES	YES	YES	YES
Birth Year	NO	NO	NO	YES	YES	YES
Trend						
Adjusted R-sqr	0.19	0.29	0.29	0.29	0.26	0.31
Observations	68032	68032	68032	68032	68032	68032

Table 4.9 reported the robust estimated effect on female employment. Controlling for household level covariates, and other fixed effects, the effects of reform are positive for younger as well as older cohorts, among the Hindu female sample. The estimated coefficients show a U- shaped pattern for the employment duration. Initially, it is higher for younger women of cohort 1. It then shows a slight declining trend, and it again rises for the older cohorts. Among non-Hindu women, the effect is negative. Column 5 shows that the younger cohorts of non-Hindu females tend to work on an average 2.5 and 2.4 months less, compared to the same cohorts in the non-reform states. Using the placebo test in column 6 the study reported that the effect is not driven by the common trend in employment. Now, the study presents the robust evidence of reform on daughter's' education in table 10. Theoretical predictions suggest that women who were exposed to the reform, were most likely transferring the benefits of the reform to their daughters by investing in their education. The main estimation results in Table 4.10, show that reforms favour the younger daughters of Hindu women. On an average, they tend to experience approximately 0.8 years more schooling than other girl children in non-reform states. However, after controlling for household covariates and other fixed effects, the intensity of the coefficient reduces to 2.7 years. When the same effect for daughters of non-Hindu was compared, the estimated coefficient showed a positive sign and insignificant estimate. For the placebo test, the female sample was restricted to those born around the 1970s. Their daughter's' education was taken as a hypothetical cohort. This is required to

see whether a recent trend in daughter's education is largely driven by the reform process, or is a continued general trend among Hindu women's daughters. Column 6 indicates that education of daughters whose mothers were born during the 1970s, showed a positive sign. However, this effect is much smaller than the main estimation, and is thus insignificant. From this section, it is evident that the effects of equal inheritance property law reform on female education and employment, as well as for their daughter's educational attainment, are robust to empirical specification. From Tables 8 to 10, all household level covariates show the expected signs; they are almost equivalent for Hindu and non-Hindu religious groups.

Table 4.10 Robustness Check-Daughter Education

	Mean Years of Education (1) (Hindu Sample)	Mean Years of Education (2) (Hindu Sample)	Mean Years of Education (3) (Hindu Sample)	Mean Years of Education (4) (Hindu Sample)	Mean Years of Education (5) (Non Hindu Sample)	Mean Years of Education (6) (Hindu Sample Placebo Test)
Age 6 to 10 at the time of reform	1.688*** (0.582)	1.526*** (0.521)	2.753*** (0.687)	2.752*** (0.687)	2.091*** (0.219)	0.880 (0.362)
Landholdin g	0.090 (0.139)	0.417* (0.219)	0.411* (0.221)	0.412* (0.221)	0.417* (0.222)	0.422* (0.223)
Household Size	0.042 (0.104)	-0.020 (0.150)	-0.027 (0.105)	-0.027 (0.105)	-0.029 (0.105)	-0.028 (0.105)
Male- Education	-0.221*** (0.026)	-0.266*** (0.40)	-0.236*** (0.034)	-0.237*** (0.040)	-0.233*** (0.040)	-0.235*** (0.040)
Male- Income	-0.115*** (0.23)	-0.098*** (0.33)	-0.134*** (0.035)	-0.133*** (0.35)	-0.141*** (0.036)	-0.138*** (0.036)

Female Education	0.667*** (0.034)	0.840*** (0.034)	0.836*** (0.034)	0.835*** (0.034)	0.841*** (0.034)	0.965*** (0.024)
Constants	1.964*** (0.559)	-0.202 (0.565)	-0.110 (0.601)	-0.247 (0.633)	-0.259 (0.635)	-0.267 (0.636)
State FE	NO	YES	YES	YES	YES	YES
Cohort FE	NO	NO	YES	YES	YES	YES
Birth Year Trend	NO	NO	NO	YES	YES	YES
Adjusted R-sqr	0.26	0.34	0.34	0.34	0.34	0.24
Observations	4991	4991	4991	4990	4990	3598

Notes *significant at 10%, ** significant at 5%, ***significant at 1%. Robust standard errors in parentheses are clustered at state level

4.7. Conclusion:

Women's economic status and their bargaining powers are determined by the property rights they effectively hold. Any institutional barriers that restrict women's access to property rights would be detrimental to the whole economy. In this chapter it was examined whether female inheritance legislation has important implications for women's well being. It establishes the relation between inheritance rights of women and the gendered outcome measured in terms of female labour force participation, educational attainments and their daughter's educational status. The results contribute to the growing literature on the role of property rights in gender development and notably, in the area of household economics which studies the importance of policies targeted towards women. Using the staggered implementation of legal amendments in the Hindu Succession Act, this chapter analysed the economic effects of improvements in inheritance laws in favour of women on labour force participation and educational attainments and studied how the benefits of those changes translate into improved education of the daughter through intra-generational transfers of resources within the family? The theoretical premise was based

on the non-Cooperative Bargaining Model which treats changes in inheritance laws as a positive shock to distribution factors which impact upon the intra-household bargaining. We believe that this positive shock allows women's access to productive resources, maximizes her utility and control over her choices, so her bargaining power goes up within a household. Improvement in bargaining position also improves her autonomy in the household. We assume that the autonomy of an individual has some intrinsic economic value which helps shape the rational behaviour, generate incentives and assist in building individual capacities. In this context, changes in inheritance laws in favour of women, greatly increase women's ability to inherit property, which subsequently increases their unearned income in the current period or some unknown point in the future. As a result, the size of the initial endowment changes for women within the household. The study showed that the equal inheritance property law reform has significant effect on the decision to invest in women's education. This positive effect is also observed in their daughter's educational attainment. The results are much stronger for younger cohorts as compared to older cohorts who are less likely to be affected by the reforms. Moreover, this improvement also increased her labour force participation through enhancing her autonomy in the household decision making process. These results are consistent with an elusive relationship between institutional change, bargaining power and women's development. Thus, the HSA reform triggered an increase in female labour force participation and educational attainment through not only expanding the economic opportunities but also by improving its accessibility.

From the policy perspective, this study offers a strong case for strengthening legal institutions in order to protect women's rights, and for enhancing their bargaining power. In 2005, the amendment to the Hindu Succession Act of 1956 extended to all women in all Indian states governed by the Hindu personal law and entitled them to inheritance rights on a par with sons regardless of their marital status. It is hoped that future research will consider this case to study the impact of reform on second generation beneficiaries and such analysis should be extended to study the impact of property rights reforms among other religions as well. At present, the focus is on the autonomy channel that has

played an important role in transmitting the benefits of reforms. However, another direct channel which may influence the results, is dowry (a bride price). But due to lack of credible data on the dowry, the study has focused on the autonomy channel.

CHAPTER FIVE

CONCLUSION

5.1. Background:

The dissertation started with the assessment of the arguments for and against labour market regulation. It began with highlighting the role of labour laws and institutions in ensuring or impeding the functioning of labour markets. It briefly discussed the problem of rigidity in labour laws, and the related views of various scholars working in an interdisciplinary environment. Then it was briefly followed by a discussion on the theoretical foundations for assessing the economic effects of labour laws and labour markets institutions. Labour laws and their institutions are perceived as an exogenous interference with the operation of labour market forces. A widespread idea is that the perfect labour market acts as an implicit regulator of decisions allowing each agent to respond to incentives. Any regulatory interference with this market mechanism may lead to inefficient outcomes for the labour market and could perhaps disrupt the entire economy and may cause a deadweight loss for society.

On the other hand, another group of scholars supports the legal intervention in labour markets that help ensure equitable distribution of income for all workers and correct market failure due to asymmetric information, signalling problems and unequal bargaining power. Eventually, the former view became a driving force to design the labour market flexibility strategy - a strategy that has dominated the reform agenda in many developing countries, and has been a driving force to reduce the regulatory constraints in the labour markets.

So far, several studies have examined the potential impact of these institutions of regulatory law on the labour markets. Much attention has been paid to study the labour market of developed countries and quite a few studies are related to developing countries. However, less attention is paid to the dynamics of local and national conditions, the legal environment, and the prevailing social institutions.

This dissertation departs from the previous studies and takes a fresh look at the impact of labour and non-labour market institutions using the interdisciplinary scholarships of law and economics, development economics and labour economics. It attempts to advance the current understanding on how the labour market and non-labour market institutions function and influence the functioning of labour markets in India. Even though the study is thus about one developing country some modest suggestions have been offered to generalise the conclusion drawn from the Indian labour market to other developing countries, which are markedly different from the developed countries but might have some labour market features in common with a country like India.

The dissertation assessed the impact of such labour market institutions that have witnessed significant changes in the legal regime in India. These changes were either an attempt to remove institutional inertia from the labour market or they had totally different policy targets but affected the functioning of the labour market. In the second category falls the change of inheritance law for women, which aimed at promoting equal rights for women but, as has been shown, had also an enormous effect on women's labour market participation.

Disregarding the fact that the author is an Indian citizen, was raised in India and has the most comprehensive and intuitive understanding of the country as compared with all other developing countries, India, as a representative country from the pool of developing economies, has been selected to conduct empirical analysis for the following reasons: . Firstly, following the reform of the 1990s, the Indian economy has achieved remarkable progress; the average annual growth rate of the Indian the economy hovered around 6.3 to 6.5 percent point for the period 2000 to 2014. Secondly, the same period is also marked as the period of demographic dividend that India is banking on to provide the country's 63.4 percentage active working age population (15-64 years) to the global economy. At a national level, this growth trajectory was largely criticised for yielding jobless economic growth by several prominent scholars and the rigid labour market institutions and inflexible business environment were mooted as the principle factors impeding the labour market performance. A priori, the arguments based on the

widespread belief of the negative impact of labour regulations has guided the policy discourse on labour issues in India. Thirdly India is a federal country, in which many rules of labour law are state law, which allows for the statistical evaluation across states. This study can be regarded as an attempt to critically examine the impact of legal reforms that are based on policy beliefs about the functioning of the Indian labour market.

5.2. Impact of Employment Protection Legislation (EPL) and Law Enforcement on the Hiring of Temporary Contract Workers in the Organised Manufacturing Sector:

In India, the heated debate on the effects of EPL on labour market outcomes is focused on total employment growth, productivity and the growth of firms. Several prominent studies concentrated on the substantive labour law leaving aside the role of enforcement. They also disregard the changing nature of employment arrangements that is the rise of contractual workers replacing regular workers. Employment protection Laws even if well enforced protect as a matter of fact only the regular but not the contract workers. The share of such temporary contract workers has increased from 10 percent points to 27 percent point; the share of regular workers has decreased from 68 percent point to 54 percent point for the period 1995–2010 respectively. On the one hand, this growth has closely been associated with an attempt to increase the labour market flexibility-an employment adjustment technique for the management of labour demand flexibly. On the other hand, this positive development has its own drawback. A growth in their share is coupled with poor working conditions, low productivity and a lack of social cohesion between contract workers and regular workers. Therefore, labour laws as promised to protect workers through ensuring employment protection to all regular workers, are actually hurting many of them, because as a consequence of this change they might become unprotected contract workers. In India, the Industrial Disputes Act (IDA) governs employer-worker relations and covers various aspects such as the resolution of labour disputes, hiring and firing workers, closure of establishments, retrenchment,

strikes and lockouts. This act covers regular workers who are directly employed in the formal sector, through long-term contracts, and who are well represented by the trade unions. However, temporary contract workers are exempted from the application of severance payment, mandatory notices or retrenchment authorisation from the state. Such exceptions from legal compliance incentivise employers to hire an increasing number of contract workers due the flexibility it offers in the formal labour market.

In this context, this dissertation hypothesises, that the stricter EPL and effective law enforcement protects the rights and economic situation of regular workers. But that it incentivizes firms to circumvent those laws by hiring more temporary contract workers, who remain unprotected and are exempted from legal compliance. This study conjectures that firms located in strict EPL states, and faced with high enforcement intensity, are likely to experience a higher incidence of temporary contract workers as compared to those firms located in less strict EPL states, facing low enforcement intensity. It is not only the substantive labour laws that produce such effects but also how well the law is actually enforced which *inter alia* determine the magnitude of the effects on the observed outcome.

Using the official data set on the Indian economy, this chapter examined - whether firms located in a stricter EPL regime across 29 states of the Indian Union hire differentially more temporary contract workers in response to variable “enforcement intensity”. The results corroborate our predictions. An overall strict EPL that protects the rights of regular workers and ensures their strong enforcement causes firms to hire more temporary contract workers relative to regular workers. Moreover, firms in inflexible labour regimes and those in flexible labour regimes hire differentially more temporary contract workers in response to the variable “enforcement intensity”. The research also showed that the severity of effects varies with the nature of the industries; the results indicate that labour intensive industries located in inflexible states, witness a higher incidence of contract workers than those located in flexible states. Therefore, the study conjectures that firms hire differentially more temporary contract workers in response to variable enforcement intensity to circumvent firing and overall mandated compliance

costs and it further gives them more flexibility in adjusting the workforce.

In a nutshell, this chapter argues that labour laws, in combination with the effectiveness of their enforcement, influence the share of temporary contract workers or informal workers relative to regular workers. Firms adjust their flexible workforce depending on the state of labour regulation and its effective enforcement. This finding might have some importance for other developing countries as well.

5.3. Impact of Mandatory Conciliation and Non Mandatory Conciliation Mechanism:

In chapter three, consideration was given to the relevance of conciliation methods in the resolution of labour disputes. We were especially interested in empirically assessing the impact of mandatory and non-mandatory conciliation processes on the negotiated settlement and the dispute resolution time. The design of the Dispute Resolution Mechanism is another labour market institution with direct implications for the labour market outcomes. EPL provides employers with the flexibility to adjust their workforce and hire more or less unprotected contract workers. The dispute resolution mechanism provides workers with a unique opportunity to use their bargaining strengths and to claim those benefits to which the law entitles them. Grievances and conflicts are an inevitable part of the employment relationship. Establishing effective dispute prevention and resolution processes is a key to promoting sound industrial relations and to facilitate a smoothly functioning labour market. Having a sound dispute resolution mechanism is critical for productive employment relations. In the absence of this mechanism, the labour market is likely to experience the strains of labour strikes and industry lockouts that would lead to an increase in the number of workday stoppages and to a decrease in the production of goods and services respectively. Notable studies have documented the growing incidence of workers unrest in many developing countries including India. As a result, the disappointment with the existing systems of dispute resolution for workers has attracted much attention.

This chapter began by explaining the role of dispute resolution in promoting healthy labour markets and illustrated how different countries have evolved their system to a multi-tier dispute resolution for various types of workers. Within the broader range of dispute resolution mechanisms, several models have been developed and applied to settle labour disputes such as conciliation, mediation, arbitration and adjudication. Among those models, the discipline of law and economics has paid much attention to the arbitration method of dispute mechanism as one form of ADR. In such studies, theoretical models of ADR have progressed relative to empirical studies to support this claim. However, little attention is paid to empirically assess the effectiveness of the different conciliation methods of dispute resolution. Using the recent changes in section 2(a) of the IDA in 2010, this chapter assessed the impact of mandatory and non-mandatory conciliation processes on the negotiated settlement and dispute resolution time. Combined with the related theoretical and empirical literature drawn from various branches of law and economics, this chapter posited its proposition on the standard theory of ADR. Based on empirical results, this dissertation argues that labour conflict cases settled in mandatory conciliation processes tend to take less average time than cases with a non-mandatory reconciliation procedure. Also labour disputes settled in the conciliation process take less time than labour disputes appealed in the labour courts. Similarly, the settlement rates were found to be significant in the mandatory conciliation process. This process allows a neutral person to assist the aggrieved parties to share information and provide an amicable environment as compared to disputes that led to a non-mandatory conciliation process. Finally, this dissertation finds that a mandatory conciliation process reduces differences in the final payments received by workers, as it provides a time-bound negotiation space to disputing parties relative to other methods of ADR

In sum, this dissertation argues that arbitration as one form of ADR provides an effective method to settle the dispute; similarly, the conciliation mechanism stands out as another effective way to redress labour conflicts in a satisfactory manner. Many legal scholars are sceptical about the capability of the conciliation to redress the labour conflicts since it is

based on the voluntary efforts, personal persuasion and wiliness of aggrieved parties. But if the legal system allows mandatory conciliation for all labour disputes that begin on the factory floor, then it may perhaps reduce the workload of labour courts and possibly render positive benefits to the disputing parties. The empirical results from this study confirm this view for the Indian case.

More generally from the point of view of the developing countries, having an effective dispute resolution mechanism is necessary to sustain harmonious industrial relations and reduce the cost of the country's legal system. This could allow the judiciary to spend their time and resources on cases that require more attention. This thesis advocates that if such mechanisms are strengthened across all developing countries, a significant amount of resources could be saved.

5.4. Impact of Equal Inheritance Women's Rights:

In the fourth chapter, the thesis is engaged with the question of how changes in inheritance laws in favour of women with the aim to end their traditionally unequal treatment, actually affected women's participation in the labour market. Hence, the analysis of how changing the legal patterns of family law can influence labour markets.

New inheritance laws gave equal rights for women on a par with men. The non-labour market institutions mediate their indirect impact through changing the bargaining position within the family. It is well understood that the family as a socio-economic unit in a given society greatly influences the division of labour and resource allocation within and outside the family. It also determines consumption and saving patterns and acts as a decisive factor for labour market participation as well as an incentive for human capital investment among females. Therefore, it is fruitful to ask whether an improvement in inheritance rights for women improves their labour force participation and their education attainments? The study thus highlights that considerable changes and improvements in one market (the labour market) might have their origin in legal changes regulating another sphere of society (inheritance law). The chapter began with highlighting the role of rights in the empowerment of women, and discussed how those rights are influential in

achieving the gendered outcome. The chapter then emphasised that inheritance laws are the principal legal instruments that grant women access to a family's wealth and bequest in the context of developing countries. It is also an important determinant of individual's incentives for wealth creation, social mobility and access to labour market opportunities. While the underlying social and cultural dynamics are complex, legal reforms to improve women's inheritance rights provide a low-cost way to reduce gender discrimination and improve a range of socio-economic outcomes for women.

India witnessed a constitutional amendment to the Hindu Succession Act of 1956 in 2005. It gave daughters equal inheritance rights with sons. However, five states in India had earlier amended the same Act in favour of daughters. Using this natural setting, the chapter exploited a Difference-In-Difference (D-I-D) estimation strategy to estimate the impact of reform on female education, labour force participation and their daughter's educational attainment. Based on the empirical results, the thesis argues that improvement in inheritance rights in favour of women significantly increases their access to productive resources and increases women's unearned income. This increase in women's unearned income also increases their autonomy, i.e. their control over income and improves their bargaining position within the family. The study found that women who were exposed to the reform experienced more average schooling years, and average months of employment. It is interesting to note that this positive effect is also observed for their daughter's educational attainments. In much of the policy discourse in developing countries, serious attention has been paid to institutions that imply direct impact on the labour markets. This thesis has paid equal attention to non-labour market institutions that could mediate their effects through changing the allocation rules in the family. Recently, it was estimated that bridging the gender gap in the labour market will translate into an economic boost of 1.4 percent per year incremental GDP growth and this could add \$700 Millions to India's GDP in 2025. About 70 percent of the increase would come from raising India's female labour-force participation rate from the current 31 percent to 41 percent in 2025, bringing 68 million more women into the economy. Thus, this dissertation argues that like the labour markets institutions that directly affect the

performance of labour markets, the same importance could be given to non-labour market institutions such as inheritance rights that may improve the outcome for women workers. Further, this dissertation also advocates that such changes be accompanied by changes in labour laws across developing countries allowing more mobility to women workers.

5.5. Avenues for future research:

In this thesis, an attempt has been made to study the impact of both labour market and non-labour institutions on various outcomes of labour markets in India. Multiple ways are opened for future research if the ideas presented in this study are considered for evidence based policy analysis. First, the analysis presented in this thesis has so far looked into the dynamics of regulatory variables as coded by some of the prominent scholars that have applied using macro data drawn on the Indian economy. It is advisable for future scholars to undertake the coding process of labour regulation simultaneously with the enforcement variable so that the true effect of a particular law can be disentangled in order to study them further. Secondly, various institutions that regulate or perhaps, facilitate the economic development in India were created during the colonial time. Labour market institutions such as some of those discussed in this study still allow the colonial mentality to be followed while enforcing labour regulations. It is further advisable for future scholars to identify such spots or trends to draw the attention of policy makers so that while amending the law they might consider it in the legislative process. Third, so far we have focused on the organised (formal) labour markets to conduct the empirical analysis. This is also due to a paucity of data that allows inter- linkages between formal and informal labour markets. Throughout this thesis, it has been assumed that labour regulations only affect the formal labour markets, but there is various anecdotal evidence which shows us the impact of rigid labour regulations on informal labour markets. Hence, it is advisable for future scholars to make use of the latest dataset on the Indian Human Development Survey 2014-15 to conduct the empirical analysis on labour market in India. Fifth, the Indian economy is going through a rapid transition, allowing the structural transformation of the age old legal institutions. Since the new government came to power, a process of structural change in the old labour laws has been stirred up to

transform the economy. It is advisable for all future scholars of the Indian labour market to take into account the current reform measures which are undertaken by the government while conducting the empirical analysis of labour regulations. Finally, and most importantly, the labour regulation debate classifying the states in India as pro-labour or capital is highly problematic as state governments' comprehensive labour policy outlook does not lend to water-tight compartmentalization as is done. This is a grave limitation of over-reliance on quantitative studies which fail to capture the realities. Here, the study advises all scholars to complement the legal analysis with empirical analysis of labour markets to see how their joint interaction affects the observed outcomes of the labour markets of India.

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Appendix: 1

States	EPL	ENFORCE
Andaman and Nicobar (UT)	0	0.13
Andhra Pradesh	-2	0.22
Assam	1	0.09
Bihar	1	0.20
Chandigarh (UT)	1	0.16
Chattisgarh	1	0.21
Dadara Nagar Haveli (UT)	0	0.09
Daman and Diu (UT)	0	0.11
Delhi (UT)	1	0.21
Goa	1	0.24
Gujarat	-1	0.29
Haryana	1	0.42
Himachal Pradesh	1	0.21
Jammu & Kashmir	0	0.13
Jharkhand	1	0.28
Karnataka	-1	0.13
Kerala	1	0.15
Madhya Pradesh	1	0.24
Maharashtra	2	0.32
Manipur	0	0.08
Meghalaya	0	0.06
Nagaland	0	0.05
Orissa	1	0.19
Pondicherry (UT)	0	0.06
Punjab	1	0.22
Rajasthan	-1	0.27
Tamil Nadu	-2	0.30
Tripura	0	0.15
Uttar Pradesh	-1	0.37
Uttaranchal	0	0.21
West Bengal	4	0.44

Source: Author's own calculation (see section 4 of Chapter 2 for the data description)

SUMMARY

This doctoral dissertation examines and investigates the impact of labour market and non-labour market institutions on the Indian labour market. In general, some of its most important findings are of interest for other developing countries as well. It engages with the critical debate on the potential adverse effects of protective labour laws. Many scholars have looked sceptically on those effects as a bottleneck to labour market flexibility and economic development. To address the raised concerns, this dissertation empirically investigates three research questions that are interlinked with each other.

The first two research questions deals with the assessment of labour market institutions that have direct implication on the Indian labour market. The third research question deals with the assessment of non-labour market institutions that has indirect implication on the labour market mediated through changing bargaining position of a woman within a family. However, this academic engagement can best be viewed as an empirical exercise exhorting how specific the India's labour laws and personal laws such as inheritance property rights, interact with the labour market. Moreover it also allows us to analyse how these interactions are receptive to advance our scholarship on understanding the relationship between labour market and labour market institutions that have witnessed significant changes since the beginning of economic reform of 1991 in India.

The first research question examines the impact of strict employment protection laws and enforcement intensity on the growing incidence of temporary contract workers in India. This chapter argues that if strict employment protection laws that protect the rights of regular workers and the enforcement of those legal rights are perfectly complied with, then it is possible for Indian firms to circumvent those laws. Firms indeed do so by reducing the demand for regular workers and increasing the demand for temporary contract workers since the latter category of workers are exempted from legal compliances. The chapter conjectures that firms located in strict employment protection states and faced with a high enforcement intensity are likely to experience higher

incidence of temporary contract workers compared to firms located in less strict employment protection states and facing low enforcement intensity. Moreover, firms in inflexible labour regimes and those in flexible labour regimes hire differentially more temporary contract workers in response to variable enforcement intensities. The degree of these effects varies across industries; the results indicate that the labour intensive industries located in states with inflexible labour law witness higher incidence of contract workers than those located in states with more flexible labour law. Nonetheless, it does matter especially how strictly those well intended laws are actually enforced. This *inter alia* determines the magnitude of effects on observed outcome.

The second research question investigates the impact of mandatory and non-mandatory conciliation mechanisms on the negotiated settlement and dispute resolution time in India. This chapter aims to find out -whether such possibilities could improve the industrial relation climate and reduce strikes and lockouts. Using the recent amendments in section 2(a) of Industrial Dispute Act of 1947 in 2010, this allows the disputing parties' direct access to the labour courts, without taking any resource to conciliation proceedings or the negotiated outcome in the conciliation conference. Combined with the related theoretical and empirical literature drawn from various branches of law and economics, this chapter posits its proposition on the standard theory of Alternative Dispute Resolution. Based on empirical results, this chapter argues that, the labour conflict cases settled in mandatory conciliation process tend to take less average time than cases appealed in the labour court (a non-mandatory scenario); whereas, at an aggregate level, labour disputes settled in the conciliation process take less time than labour disputes appealed in the labour courts. Similarly, the settlement rates were found to be significant in the mandatory conciliation process as it allows a neutral person to assist the aggrieved parties to share information and provide an amicable environment compared to disputes that participated in a non-mandatory conciliation process. Finally, a mandatory conciliation process provides an effective way to reduce differences in the final payments received by workers, as it provides a time-bound negotiation space to disputing parties relative to other methods of Alternative Dispute Resolution.

The third research question analyzes- whether the equal inheritance property laws reform improves female labour force participation and educational attainments in India. This chapter argues that improvement in inheritance rights in favour of women significantly increases women's access to productive resources and increases women's ability to inherit property, which subsequently, increases their unearned income in the current period or some unknown point in the future. This increase in women's unearned income also increases their autonomy, i.e. their control over income and improved bargaining position within the family. In 2005, India witnessed a constitutional amendment to the Hindu Succession Act of 1956. It gave daughters equal inheritance rights as sons. However, five states in India had earlier amended the same Act in favour of daughters. Using this exogenous variation created by legislation on inheritance property rights; this chapter exploits a Difference in Difference estimation strategy to estimate the impact of reform on female education, labour force participation and their daughter's educational attainment. This chapter argues that women who were exposed to the reform have greater average years of schooling and average months of labour force participation than those women who were not exposed to the reform. It is interesting to note that this positive effect is also observed in daughters' educational attainments whose mothers were exposed to the reform.

SAMENVATTING

In dit proefschrift wordt het effect van arbeidsmarkt- en niet-arbeidsmarktgerelateerde instellingen op de Indiase arbeidsmarkt onderzocht. Over het geheel genomen zijn een aantal van de belangrijkste bevindingen ook relevant voor andere ontwikkelingslanden. Het proefschrift sluit aan op het kritische debat over de potentiële negatieve effecten van beschermende arbeidswetgeving. Veel wetenschappers zijn sceptisch over deze effecten en beschouwen deze als een bottleneck voor een flexibele arbeidsmarkt en economische ontwikkeling. Het proefschrift gaat in op de gerezen bezorgdheid aan de hand van empirisch onderzoek naar drie onderling gerelateerde onderzoeksvragen.

De eerste twee onderzoeksvragen hebben betrekking op de beoordeling van arbeidsmarktgerelateerde instituties die rechtstreeks van invloed zijn op de Indiase arbeidsmarkt. De derde onderzoeksvraag betreft de beoordeling van niet-arbeidsmarktgerelateerde instituties die indirect van invloed zijn op de arbeidsmarkt als gevolg van de veranderende onderhandelingspositie van de vrouw in het gezin. Deze academische betrokkenheid kan echter het beste worden beschouwd als empirische oefening waarbij wordt onderzocht hoe specifiek de wisselwerking is tussen het Indiase arbeidsrecht en privaatrecht, waaronder het erfrecht, enerzijds en de arbeidsmarkt anderzijds. Daarnaast wordt geanalyseerd hoe deze wisselwerking het wetenschappelijk begrip ten goede kan komen van de relatie tussen de arbeidsmarkt en arbeidsmarktgerelateerde instituties, die sinds de economische hervormingen van 1991 in India ingrijpende veranderingen hebben doorgemaakt.

De eerste onderzoeksvraag beoordeelt het effect van strenge beschermende arbeidswetgeving en de intensiteit van de handhaving op de toename van het aantal tijdelijke arbeidskrachten in India. In dit hoofdstuk wordt gesteld dat indien de strenge arbeidswetgeving die dient ter bescherming van de rechten van vaste werknemers volledig wordt nageleefd en gehandhaafd, Indiase bedrijven die wetten zullen

omzeilen. Bedrijven doen dat door de vraag naar vaste werknemers te verlagen en de vraag naar tijdelijke arbeidskrachten te verhogen, aangezien deze laatsten niet onder deze wetgeving vallen. In dit hoofdstuk wordt gespeculeerd dat bij bedrijven in staten met een strenge beschermende arbeidswetgeving die worden geconfronteerd met een hoge intensiteit van de handhaving waarschijnlijk sprake is van een hoger aantal tijdelijke arbeidskrachten dan in bedrijven in staten met een minder strenge beschermende arbeidswetgeving en een lagere handhavingsintensiteit. Bovendien nemen bedrijven in staten met een inflexibele arbeidswetgeving en bedrijven in staten met een flexibele arbeidswetgeving relatief meer tijdelijke arbeidskrachten aan als reactie op een variabele handhavingsintensiteit. De ernst van de effecten varieert per sector; de resultaten duiden erop dat in de arbeidsintensieve sectoren in staten met een inflexibele arbeidswetgeving sprake is van meer tijdelijke arbeidskrachten dan in staten met meer flexibele arbeidswetten. Het is echter met name van belang hoe strikt die goedbedoelde wetgeving effectief wordt gehandhaafd. Dit bepaalt onder andere de omvang van het effect op de waargenomen uitkomst.

De tweede onderzoeksvraag kijkt naar het effect van verplichte en niet-verplichte bemiddelingsmechanismen op de tijd die in India nodig is om via onderhandelingen overeenstemming te bereiken en geschillen te beslechten. In dit hoofdstuk wordt getracht vast te stellen of dergelijke mogelijkheden zouden kunnen leiden tot betere arbeidsverhoudingen en een daling van het aantal stakingen en bedrijfsbezettingen. Op basis van de in 2010 doorgevoerde wijzigingen in artikel 2(a) van de arbeidsgeschillenwet van 1947 hebben de twistende partijen rechtstreeks toegang tot de arbeidsrechtbanken, zonder te hoeven terugvallen op bemiddelingsprocedures of de onderhandelingsresultaten van de bemiddelingsconferentie. In combinatie met de relevante theoretische en empirische literatuur afkomstig van diverse rechtsgebieden en takken van de economie, wordt in dit hoofdstuk een stelling geponeerd over de standaardtheorie van de alternatieve geschillenbeslechting.

Aan de hand van de empirische resultaten wordt in dit hoofdstuk gesteld dat de arbeidsconflicten die worden beslecht in een verplichte bemiddelingsprocedure gemiddeld minder tijd in beslag nemen dan zaken die door de arbeidsrechtbanken worden behandeld (een niet-verplicht scenario); over het geheel genomen nemen arbeidsgeschillen die worden beslecht in de bemiddelingsprocedure minder tijd in beslag dan arbeidsgeschillen die door de arbeidsrechtbanken worden behandeld. Evenzo bleek het percentage beslechte geschillen in de verplichte bemiddelingsprocedure significant te zijn als gevolg van het feit dat een onpartijdige persoon de benadeelde partijen kan helpen informatie te delen en er sprake is van een meer vriendschappelijke omgeving dan bij geschillen die werden onderworpen aan een niet-verplichte bemiddelingsprocedure. Ten slotte biedt een verplichte bemiddelingsprocedure een effectieve manier om verschillen met betrekking tot de uiteindelijke betalingen die werknemers ontvangen terug te dringen, doordat de twistende partijen anders dan bij andere methoden inzake alternatieve geschillenbeslechting een tijdgebonden onderhandelingsruimte wordt geboden.

De derde onderzoeksvraag analyseert of de hervorming op het gebied van gelijk erfrecht leidt tot een grotere arbeidsparticipatie en betere schoolprestaties van vrouwen in India. In dit hoofdstuk wordt gesteld dat de verbetering van het erfrecht ten gunste van vrouwen de toegang van vrouwen tot productiemiddelen en de mogelijkheid voor vrouwen om eigendom te erven aanzienlijk vergroot, wat vervolgens leidt tot een stijging van hun inkomen uit vermogen op dat moment of op enig onbekend tijdstip in de toekomst. Deze toename van het inkomen uit vermogen van vrouwen komt ook hun autonomie ten goede: ze hebben meer zeggenschap over hun inkomen en een betere onderhandelingspositie binnen het gezin. In 2005 vond in India een wijziging plaats van de Hindoestaanse wet inzake erfopvolging van 1956. Hierdoor kregen dochters dezelfde erfrechten als zonen. Vijf staten in India hadden dezelfde wet al eerder ten gunste van dochters gewijzigd.

Uitgaande van deze exogene variatie die het gevolg is van de wetgeving inzake erfrecht wordt in dit hoofdstuk een strategie voor een verschil-in-verschil-meting gehanteerd om een inschatting te kunnen maken van het effect van hervormingen op onderwijs voor vrouwen, hun arbeidsparticipatie en de schoolprestaties van hun dochters. In dit hoofdstuk wordt gesteld dat vrouwen die met de hervorming te maken kregen gemiddeld meer scholingsjaren en meer maanden arbeidsparticipatie hadden dan vrouwen die niet met de hervorming te maken kregen. Het is interessant om op te merken dat dit gunstige effect ook wordt waargenomen bij de schoolprestaties van dochters van moeders die met de hervorming te maken kregen.

Curriculum vitae

RAHUL SAPKAL
rahul.sapkal@edle-phd.eu

Short bio

Mr. Rahul Sapkal is a doctoral candidate with European Doctorate Program in Law and Economics at University of Hamburg (Germany), Erasmus Rotterdam University (The Netherlands) and University of Bologna(Italy). He has successfully submitted his PhD thesis titled, *“How Law And Law Enforcement Affect Labour Markets In Developing Countries? An Empirical Study On India”*. His dissertation consists of three essays which investigates the economic effects of labour market and non labour market institutions on labour market outcome in India. His dissertation attempts to contribute to the discipline of labour law and economics through conducting empirical analysis of labour law in India. The study sheds light on the functioning of law and lawlessness, which might be of general interest for understanding labour markets in developing countries. Mr. Sapkal’s academic training has enabled him to hone both empirical and theoretical skills to pursue research goals in the field of Labour Economics, Development Economics, Microeconometrics, and Law and Economics. Prior to joining the PhD program, Mr. Sapkal has received his Master’s degree in Development Studies from Tata Institute of Social Sciences, Mumbai and Bachelor’s degree in Commerce and Economics from University of Mumbai. Mr. Sapkal has worked as a research associate with International Labour Organization, New Delhi, and the Tata Institute of Social Sciences, Mumbai on a project title “Women’s Work, Maternity and Public Policy in India”. Mr. Sapkal has more than three years of empirical research work experience with Tata Institute of Social Sciences, Centre for Enquiry Into Health and Allied Themes and International Labour Organization. Mr. Sapkal’s research interest involves the application of economic tools to legal analysis, law and development, economic analysis of labour laws and regulation, development economics and gender and development. His scholarship is grounded in theories and methods of Law and Economics, Microeconomics and Microeconometrics, with special focus on using the quasi-experimental research design. In his academic career, Mr. Sapkal aims to conduct interdisciplinary, policy oriented and scientific research in the discipline of law and economics with special focus on developing countries. His research work emphasis on the design of efficient legal rules, evidence based analysis of public policy, enforcements strategies and optimal level of regulation.

Currently Mr. Sapkal is working as a senior researcher with UNICEF India and Assistant Professor of Economics Maharashtra National Law University, Mumbai. Recently Mr. Sapkal (along with Prof. Deb Kusum Das and Prof. Jaivir Singh) has received a research grant of ₹15,000 from International Growth Centre, London School of Economics to conduct two field experiments to assess the firm level impacts of changes in Contract Labour Act of 1970 and Minimum Wages Act of 1960 in the state of Rajasthan, India.

Education

Ph.D in Law and Economics (pursuing)	2011- present
Master in Arts in Development Studies	2009
Bachelor in Commerce and Finance	2007

Work experience

Assistant Professor (Economics) Maharashtra National Law University Mumbai	2016-present
Senior Researcher, UNICEF India	2015-2016
Guest Lecturer National Law University Mumbai (India)	2015
Guest Faculty, V V Giri National Labour Institute (Oct-Dec)	2014
Research Associate, TISS, International Labour Organisation	2009-11

Prizes and awards

2 nd Best Paper Presentation Prize (Job and Development Conference Organised by Indian Council of International Economic Relations and World Bank.	2015
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Publications

Sapkal Rahul (2016). "From Mother to Daughter: Do Equal Inheritance Property Laws Reform Improves Female Labour Supply and Educational Attainments in India?" Asian Journal of Law and Economics [DOI 10.1515/ajle-2015-0028]	2016
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Sapkal Rahul, Lingam Lakshmi and Krishnaraj Maithreyi (2013) : “Chapter 3: Women’s Work and Employment”, in the project report title, “Women’s Work, Maternity And Public Policy In India” coauthored with Prof. Lakshmi Lingam and Prof. Maithreyi Krishnaraj and Dr. Shweli Kumar, International Labour Organization, New Delhi	2013
Sapkal Rahul (2011): Book Review – Dalits in India: Search for a Common Destiny by Prof. Sukhdeo Thorat Sociological Bulletin, Vol. 60, No. 1 (January-April 2011), pp. 167-169 [Link http://www.jstor.org/stable/23621016]	2011
Sapkal Rahul and Parmar Daksha (2009): “Democracy and Fiscal Function: Approaching New Conceptual Framework”. Jharkhand Journal of Development and Management Studies (XIJS), Vol 7 No 2 (XXVII), pp-3397-3418. [Link- http://ssrn.com/abstract=2470032]	2009

EDLE PhD Portfolio

Name PhD student : Rahul Sapkal
 PhD-period : 2011-2014
 Promoters : Prof.dr. Hans-Bernd Schäfer (Supervisor Hamburg)
 Prof.dr. Michael Faure (Supervisor Rotterdam)

PhD training

<i>Bologna courses</i>	<i>year</i>
Microeconometrics (Elective- Bologna)	2011
Labour Economics (Elective- Bologna)	2011
Econometrics 2 (Elective- Bologna)	2012
Mathematics of Economics (Elective- Bologna)	2012
Macroeconomics I (Elective- Bologna)	2011
Microeconomics II (Elective- Bologna)	2012
Financial Institution Management (Elective- Bologna)	2011
Statistics (Compulsory-Bologna)	2011
Introduction to Italian Legal System (Compulsory-Bologna)	2011
Italian Language (Compulsory-Bologna)	2011
Experimental and Behaviour Law and Economics (Compulsory-Bologna)	2012
Game Theory and the Law (Compulsory-Bologna)	2011
Economic Analysis of Law (Compulsory-Bologna)	2012
Z tree Crash Course (Compulsory-Bologna)	2012
European Securities and Company Law (Compulsory-Bologna)	2012
Economics of European Competition Law and IPR (Compulsory-Bologna)	2012
<i>Specific courses</i>	<i>year</i>
Research Methods in Labour Studies (India)	2014
Advance Topics in Development Economics	2014
One week Advance Course in Microeconometrics for Labour Economists (Institute of Labour Study Bonn, Germany)	2013
Seminar 'How to write a PhD' (Rotterdam)	2013
Academic Writing Skills for PhD students (Rotterdam)	2013
Seminar Series 'Empirical Legal Studies' (Rotterdam)	2013
Special Topics in Causality in Microeconometrics (Bologna)	2013

<i>Seminars and workshops</i>	<i>year</i>
Bologna November seminar (participant)	2012
BACT seminar series (participant)	2013
EGSL lunch seminars (participant)	2013
Joint Seminar 'The Future of Law and Economics' (Presenter)	2013
Rotterdam Fall seminar series (reviewer-peer feedback)	2013
Rotterdam Winter seminar series (reviewer-peer feedback)	2013
<i>Presentations</i>	<i>year</i>
Bologna March seminar	2012
Hamburg June seminar	2012
Rotterdam Fall seminar series	2013
Rotterdam Winter seminar series	2013
Bologna November seminar	2013
Joint Seminar 'The Future of Law and Economics'	2013
<i>Attendance (international) conferences</i>	<i>year</i>
3 rd Polish Law and Economics Conference	2012
IZA Summer School – University of Bonn	2012
Annual Conference- Indian Association for Labour Economist	2012
European Association for Law and Economics Conference	2013
VfSconference(Verein für Socialpolitik) HELMUT SCHMIDT UNIVERSITÄT HAMBURG	2014
International Conference on Law and Economics, Bilkent	2014
32 rd International Labour Process Conference, London	2014
2015 Annual Meeting - Population Association of America, Yale University	2015
International Law and Economics Conference IIT-Gandhinagar (India)	2015
Job and Development, World Bank New Delhi	2015
<i>Teaching</i>	<i>year</i>
Guest Lecturer V VGiri National Labour Institute, Noida (India)	2014
Assistant Professor (Economics) Maharashtra National Law University Mumbai (India)	2016-till date
<i>Others</i>	<i>year</i>
Senior Researcher and Program Manager, UNICEF India	2015- 2016