Sectoral Wage Disparities in India

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DECLARATION

I declare that the thesis entitled **"Sectoral Wage Disparities in India"** submitted by me for the award of the degree of **Master of Philosophy** of Jawaharlal Nehru University is my own work. The thesis has not been submitted for any other degree of this University or any other university.

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CERTIFICATE

We recommend that this thesis be placed before the examiners for evaluation.

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CHAPTER 1

INTRODUCTION

1.1. Background

Matters related to the relative poverty resulting from income inequality are easily found worldwide despite the growth in the total wealth of countries in the process of economic development. There are plenty of researches on the mutual relation between higher growth and income inequality that has been carried out across the world. Kuznet (1955) found income inequality for the early phases of economic growth with industrialisation and urbanisation, and it appears to be closely linked to the phenomenon frequently observed in many developing countries in Asia (Perera & Lee 2013), even if there are slight differences depending on country`s characteristic. The issue has gained importance because of recent inequalities that occur across types of employment, showing the necessity to study various aspects. Besides, there is a differential distribution of economic growth outcomes under the social structure like stages of capitalism. These differences especially seem worrisome when they are associated with discrimination, in the system.

In this respect, the issue has also grown in significance to investigate the trends in wage disparity in India. The country has changed in terms of economic growth, emerging as a promising country following China in terms of development potential. It has sustained its growth since economic reform in 1991, emphasising openness into the world market. The trade liberalisation in economic reforms has resulted in economic growth (Yucel 2009). In fact, it is shown that the growth in trade has been more than 10% per year since 2000 along with the transition of industrial structure.

Simultaneously, the development process leaves mark on various issues making way for economic growth that happened in India. One of them, that concerns the quality of life, is the gap between rich and poor. This is one of the most frequently stated problems due to the unfairness that an individual is struggling to overcome, and Barro (1991) argued that the problem is acting as an obstacle to sustainable growth in the labour market. The change in industrial structure during the liberalisation of trade made the whole income given for labourers higher in the market. However, the disparity has widened as numerous workers have been excluded from the beneficiary group after

economic development. It has brought financial difficulties to underprivileged people in the low economic class. Therefore, this paper tries to assess the significance of related factors to mitigate wage inequality concerning the industrial sector, assuming that economic inequality could harm India's sustainable growth.

As a significant example, economic reforms since the 1990s could be noted to explain the driving force for economic development in India. One of the economic reforms that has eased globalisation barriers and increased productivity that is mentioned earlier, is led by the tertiary sector. However, most poverty problems have not been solved after the post-reform period (Sarkar & Mehta 2010), which is closely connected to the fact that wealth distribution has not improved despite the growth in the economy of India. Although there are various opinions about the impact of economic growth on the economic divide among specific groups, it is evident that the disparity in wealth has been expanded by diverse factors in India.

These changes are related to income and, in particular, to wages from individual labour activities in the market. Moreover, it is worth reviewing the impact of industrialisation on economic growth to understand the transition to such an unequal labour environment. According to Kaldor (1957), who mentioned positive development effects from manufacturing, productivity changes lead to employment market transition. One of the significant changes from the industrialisation point of view, in India's development, is that shares of both the secondary and the tertiary sector has increased compared to the primary sector that was traditionally considered the major sector.

Significantly, the tertiary sector, including the IT industry, has been one of the significant determinants of India's labour market, and wage inequality could arise due to the differences in productivity among industrial sectors. Das (2012) insisted that these industrial factors have made distinct differences affecting India's wage inequality. Unlike the primary sector, wage inequality has increased with the expansion of secondary and tertiary sectors, which shows that the results are related to each sector's technological innovation and premiums (Pieters 2010). It helps development in these specific sectors from the rising investment from such high productivity, making a virtual cycle structure. It is necessary to be aware of the wage inequality in terms of the industrial sectors. Therefore, this study begins with the premise that there are differences in workers' income according to the industrial sector caused by industrial changes, which could worsen the distribution of wealth.

Moreover, problems regarding the wealth distribution are that it helps other types of income inequality worsen within these industrial categories, which makes double discrimination characterized by not only the industrial sectors but also the unfavourable factors in the employment market such as gender, location, making discrimination severe in the labour market. The main point is that India's labour market has consistently shown instability, with a high proportion of self-employed and contract workers leading to a high rate of informal employment in India (Srija & Shirke 2014).

According to the International Labour Organization (2018), more than 80% of the informal sector consists of jobs and atypical employment relationships that are not reported to government authorities in India. It suggests that 67.0 % workers in the informal sector were in absolute poverty and the share was 33.4 % for workers in the formal sector (Bonnet et al. 2019). The statistic indicates a high correlation between employment in the informal sector and the poorness of the worker. Regarding employment types, the percentage of self-employed workers, mostly made up of casual workers finding a temporary job, consistently showed a downward trend after the economic reform in 1991 while the percentage of salaried workers slightly increased. According to the World Bank data from the estimated ILO model, the proportion of self-employed workers is 76%, salaried workers is 15% and contributing family workers is 11.8% in 2020. The proportion of self-employment appeared to be high, especially in rural areas, because of the high rate of workers in the primary sector. These data show the vulnerability of the labour market in India and the need to assess the labour market from this point of view.

The thing about wages is disparities in compensation according to the characteristics of the job positions that differ in the labour market. Based on Smith (1937), the compensation wage gap can be defined as the wage premium for enduring non-monetary disadvantages such as working conditions, income stability, and training expenses. In other words, it means process of balancing other jobs with more rewards for the net profits returned to workers to offset the disadvantages outside of wages like risk and stability. Therefore, it is regarded appropriate to pay a higher salary to compensate for the loss of income due to unemployment if employment is generally unstable and possibility of unemployment is high.

The principal need is to focus on which type of casual work are highly rewarded in practice. The casual workers are generally referred to as workers involved in forms of employment that have employment deadlines such as daily employment, fixed-term

position or short-time workers, etc. They can easily reach the unstable condition in their employment status at any time due to incompleteness of the contract period without the protection of laws. For example, permanent workers are guaranteed employment for a certain period and are strictly protected by labour law. It can also make a difference in economic compensation even if they do similar work with similar productivity. In addition, permanent employees have increased individual abilities due to continuous career under legal protection, but there may be restrictions on the capability's improvement due to career disconnection in the case of casual workers, which is able to influence their income. Moreover, relatively invisible inequalities other than simple income inequality naturally have mass-produced casual workers for profit-generating opportunities for the employers in the absence of compensations for these instabilities, unlike what is suggested in the theoretical approach.

There are several points regarding this problem. Especially, India's labour market has been defined as having inflexible labour orientation to labour laws, which is mainly valid for workers who belong to the permanent type (Sharma 2006). Generally, the institutions concerning the labour market have been mostly invariable, unlike other economic reforms. Thus, the proportion of casual type has increased with flexibilization for cost-cutting in the labour market. In particular, these forms of employment have increased, and the casual sector has been evaluated as sluggish despite economic development since the 2000s.

Along with the increase in proportion of casual type workers, many individuals who belong to this type are receiving disadvantageous treatment from their work, including lower wages than permanent workers regardless of the labour outcome. In addition, workers who belong to casual types are always exposed to risk of unemployment and suffer from being hard to predict maintenance of their employment in the long term. Furthermore, these kinds of economic classes in terms of wealth could be typically solidified if the choice of the employment type is involuntary or worsen considering other traditional discriminations, leading to inheritance of low economic status that makes economic development disrupted. Moreover, Davies & Shorrocks (2000) emphasised the difficulties in hierarchical mobility across the economic classes because wealth is unequal to income in terms of distribution since wealth inheritance has been essential for wealth differences.

From this perspective, casual employment is referring to types of employment positions based on a capitalist society to reduce overall costs and increase productivity.

However, the increase in labour flexibility contributes to economic poverty for many workers by emphasising economic efficiency and growth in the number of cost-sensitive contracts at the same time. Therefore, this distorts the social structure in equal compensation according to ability resulting in a decline in overall productivity in society. One example is the state of affairs in South Korea, where the proportion of casual workers is high. It has been pointed out that the instability for the youth population has even acquired low birth rates, which can deteriorate the quality of life despite the hard labour of workers with the overall economic growth.

In conclusion, the widespread presence of casual employment in the informal market is one of the prevalent discriminations in India, done in order to enhance labour flexibility and reduce costs as the rigid environment is only for permanent employees. However, this kind of discrimination has been relatively neglected up till now than other forms of discrimination. Discrimination based on employment types makes an incredible impact on wage inequality like other factors such as caste and gender, which are regarded as significant traditional factors in India. Like Japan and South Korea, some developed countries have progressed research about troubles of discrimination against casual workers after realizing the side effects in society from cost reduction in a short period. Therefore, as a developing country, India also needs to pay attention to the irrationality of the discrimination emerging from employment types to make a step in the right direction for economic development.

Finally, it is necessary to discuss the wage inequalities from the perspective of economic growth theory. The interference with capital distribution is a factor to be suppressed in mainstream economics since the share is different based on individual productivity. Although, these economic activities are generated in society's context, but from a different perspective these inequalities lead to a social division with solidification of economic classes in reality. For instance, it has been shown that creating shortage in effective demand that is related to income and increase in the stock of the product, could result in depression of the economy if the portion of income used for consumption expenditure is relatively lower than the portion returned to savings from the perspective of the principle of effective demand (Keynes 1936).

Based on these theories, Keynes (1936) argued that income and employment levels are determined according to the magnitude of sufficient demand consisting of consumption and investment through Keynesian employment theory in the 1930s. The determinants of employment and income are connected to the principle of effective

demand through increased demand in the commodity market as the problem occurs due to lack of demand compared to sufficient supply capacity. Also, it insists on the magnitude of aggregate demand that determines the size of aggregate supply in the market. Therefore, effective demand needs to be created to overcome underemployment, emphasising the role of government's intervention, such as income redistribution and adjustment of the interest rate. From this perspective, the share of labour income in national income needs to rise, with reduction in inequality, to improve the standards of purchasing power at low-income levels. This can be achieved by focusing on the fairness of income distribution for low-income workers, which helps to increase demand in the market through the betterment of workers across employment types, minimum wages, etc.

Additionally, there are various opinions about significant impacts of wage inequality on economic growth. Some have paradoxically argued that these income inequalities are favourable for economic growth. For example, Seguino (2000) discussed a proportional correlation between GDP growth and wage discrimination of the community, as the discriminatory element of the inequality is positively related to the portion of the investment that positively affects the GDP growth of a nation. However, the other research indicated that the wage discrimination that has nothing to do with human capital investment, and job proficiency negatively affects the nation's economic growth in the long run because lessened motivation for investing in human capital cause low productivity (Esteve-Volart 2014). On the other hand, Jha, R (2000) pointed out that economic inequality could reduce the overall compensation for labour in the capital market with the expansion of the tertiary sector, which brings regional disparity in economic growth.

However, Lavoie & Stockhammer (2013) noted that wage-led growth could be done by public policies of the government for the labour market, instead of wage distribution generally being approached from the perspective of growth. Therefore, this study also assumes that the domestic economy centred on household income can be stabilised by easing wage inequality in Indian society and raising the income and purchasing power of the whole population, thereby leading to continuous economic growth. Therefore, it is necessary to precisely analyse the structure of the income system depending on employment types in connection with industrial sectors in India to promote public welfare and the redistribution of income based on the potential of economic growth in India.

1.2. Research Questions

The aim of this study is to systematically comprehend the wage structure according to the type of employment amid the expansion of secondary and tertiary industries caused by industrialisation, as mentioned earlier. We begin with the assumption that the composition of industrial sectors to which workers belong affects the compensation structures such as the equivalent of wage premium from industrial sectors (Dutta 2007).

The study provides new insights on whether there are superficial differences and inequality in the wages between permanent and casual positions in India and then compares among those employment types for each industry classification to check the impact of industrial factors. Second, it will examine the difference in factors that determine employment types by industrial sectors to seek determinants of permanent position of workers. The third issue is to find disparities in the wages of workers given industrial sectors and assess whether there is income discrimination between permanent and casual workers according to industrial sectors. Also, the wage gap can be further checked along income quantiles. Finally, the causes and consequences of these wage formations can be investigated through aforementioned steps, especially in view of economic growth, to suggest better solutions, showing a connection between income discrimination and effects of these categories.

As a result, these questions and answers suggest interesting challenges to focus on in the study of wage disparity between employment types related to job security, across industrial sectors. In this study, we hypothesized that the wage structure of workers differs according to industrial sectors. In particular, discriminations between permanent and contract workers are generated from the effects of the wage structures. The fundamental analysis of these discriminations appears to be not enough and requires a deeper evaluation. Therefore, the primary objective of this study is to examine the wage inequality by employment types across industrial sectors based on statistical analysis of various views on the industrialisation in India. This analysis will be meaningful as it is expected that secondary and tertiary sectors will be expanded in India over time with support from policies of the government for the secondary sector accompanied with enlargement of the wage gap by employment types.

1.3. Study Areas and Organisation

In this study, we use sample data to analyse individuals who reside in India. Researches on the Indian labour market have been conducted from various angles. India has a vast territory with different characteristics in each region, so there are some restrictions. However, it is worth analysing India's individuals as a whole to understand the labour market in India with the progress in general. There are various forms of income inequality in India, and we can examine one aspect of these in Indian labour market through this study. In previous researches, the analyses are conducted with diverse methodologies regarding the topic to understand more polarisation in the labour market as an analysis of the changes in the industrial structure with industrialisation in India.

Furthermore, this research intends to proceed in the following direction. Before anything else, this study classified industrial sectors according to the three-sector model, which divides economies into three sectors developed by Fisher (1939), although there are many classifications regarding industrial sectors. It shows that industrial sectors consist of the three classifications like primary, secondary, and tertiary sectors. First, the primary sector makes essential goods, including agriculture, fisheries, and forestry, etc. The secondary sector mainly processes raw materials for manufacture, which has been made from the primary sector, like mining. Finally, the tertiary sector provides a service to make people's life convenient such as education, retail, transport, etc. Additionally, it is assumed that the industrial classification usually advances and extends in stages from the primary sector to the tertiary sector, depending on the level of development of the economy in a country.

The study takes the form of six chapters in the following way. This chapter has presented the research background and the direction in which the research would proceed in the next step. Chapter 2 suggests relevant theories and preceding research related to this study, focusing on ideas about determinants of wages, industrial development, and discriminations in India's labour market. Chapter 3 shows statistical trends in Indian industrial sectors and the labour market using Gross Domestic Product (GDP) data along with the National Sample Survey (NSS) data. Chapter 4 is concerned with the methodology with proper variables used in this study, and chapter 5 analyses and discusses the estimation results of the data. Finally, chapter 6 summarises this piece of writing and suggests implications of the study along with some proposals.

CHAPTER 2

LITERATURE REVIEW

Many developed countries such as South Korea in East Asia have developed based on neoliberalism's economic principles such as globalisation with market competition for production efficiency for the economic development. At the same time, the problem regarding casual workers in South Korea has become severe because of the side-effects of growth having negatively affected related factors of society across board such as country's current growth rate and low birth rate. These parts need to be researched more specifically as a preparation function to drive higher growth with lower side effects in India. Therefore, this chapter examines in detail various studies in this area as this research has tried to focus on the income structure by employment types according to industrial sectors.

Many research pieces have focused on income inequality throughout the world, showing the principal cause in terms of compensation from workers' productivity in view of mainstream economics, and we attempt to review some of these preceding researches. First, it is meaningful to search related studies on trade liberalisation following the economic reforms in 1991 that significantly impacted the structure of the labour market to understand changes in India's industrial structure. Second, income-related theories are examined with the wage structure concerning various ideas, especially regarding human resource compensation. Finally, we looked at discrimination from multiple angles with respect to the income structure of India's labour market, checking various preceding researches related to the labour market that are connected with our research theme.

2.1. Globalisation and Labour Market

2.1.1. Restructuring from Economic Reforms

Various studies on the effects of Indian economic reforms that made the economy to grow at a higher rate are centred on service and private sector, foreign investment based on market ideology in the labour market. As such, these studies are worth investigating to understand the alteration of economic inequality amid globalisation which has been helping the development in India as reflected by the latest

trend. These alterations have made the factors for economic development not only domestic issues of one nation but also expanded it to both inside and outside the country. Compensation for workers is also one of the phases of change in India's industrial structure, which makes it necessary to examine existing studies related to trade liberalisation, especially as wages for skilled and unskilled workers also changed in the trend flow making the socio-economic gap to expand over time. Based of these prerequisites, the next paragraph shows changes in the economic situation with time to analyse the trend's characteristics.

From a chronological perspective, the government has operated a planned economy, named as Nehruvian Socialist regime, which is based on socialism with democracy after the independence of India from Britain in 1947, making the Indian government play an important role in economic development and industrialisation with rigid policies such as high tariff, non-tariff policies, and licensing systems, showing various trends of economic development (Das et al. 2019). However, the regime has been continuously adjusted in terms of economic growth in India. Further, the limitations have been simultaneously shown, such as the existing system cannot be resolved of problems that are inevitably coming over time (Vakulabharanam & De 2016). Eventually, the Indian economy took a new turn with economic reforms since 1991 due to the currency crisis as it entered into financial difficulties. The need for reforms became more apparent as India underwent a fundamental shift under economic depression. Amid such alterations, the productive aspects of capital accumulation have attracted attention, and the tertiary sector, which continues to be considered as significant, has entered the market system in earnest (Das et al 2019). In particular, the trade opening with exportation and importation through the ease of tariffs has been promoted in the reform period by keeping trade barriers low. Exportation and importation in India have continued to grow ever since and have clearly shown growth since the 2000s.

In the context of industrialisation, India selected self-sufficiency from the primary sector with a state-led planned economy and the sector's share was about half of the total economy in 1947 (Desai 2006). Based on the industrial strategy after independence, the principal sectors like the textile industry have changed to manufacturing industries such as machinery and chemicals, showing high growth of these sectors (Patnaik 1979). However, as mentioned above, the Indian government has tried to transform the change in industrial structure to economic growth by securing

competitiveness in the world through new industrial policies like shift to privatisation and attract foreign investment through economic reforms. As a result of these changes, the Indian economy has been swept into the market economy structure, with the development of financial markets and expansion of private sectors. It also attempts to improve the structure of the market by reducing the license system with the alleviation of monopoly in the economy (Kothari 1997). Klein & Palanivel (2000) estimated that such economic reforms have had a positive impact on economic growth and have also increased national incomes by promoting development in the sectors following global trends regardless of distortion in income distribution.

Among these improvements, India has entered into the world economy with trade liberalisation. Trade liberalisation means activating trade transactions of goods both materially and spiritually by mitigating artificial barriers that hinder import and export transactions. Trade liberalisation, which focused on reducing tariffs through Indian economic reforms, has gradually changed the direction of the Indian economy. Import restrictions such as the abolition of import permit system were eased to expand total trade. It has also increased promotion policies by the government to support export companies to increase actual exports, unlike the previous economic system that had maintained a closed economy, from a trade perspective, based on high tariffs (Rajan & Sen 2002).

These policies for trade promotion encouraged India to partly enter the process of globalisation and bring about changes in the domestic economic system, which is different from existing strategies to develop the economy with self-sufficient structures, which has been industrialised with five-year plans with limited economic growth. Besides, the increase in foreign investment strengthened their competitiveness through liberalisation of the type of investment. In fact, under these policies since 1991, the scale of trade has increased through reforms and opening up, which made India enter the global economy in the 1990s (Rajan, & Sen 2002), and based on trade agreements such as Free Trade Agreement (FTA), it has proliferated in the 2000s and maintained economic growth since the liberalisation. It has been shown that maintaining high growth mainly in India's tertiary sector, unlike other developing countries that are mainly made up of manufacturing industries, contributes to employment with economic development (Eichengreen, & Gupta 2011). The contribution of the tertiary sector, such as the Information Technology (IT) industry, in economic growth has been expanding, and it has developed from rich human resources through education. It has also been

helpful for creating jobs, mainly centred on the expertise in the IT industry. In fact, these changes have led to a high growth of economy such as average annual economic growth rate of 6% since 1991 with the extension of trade transactions with new countries like the United States.

2.1.2. Changes in the Labour Market

These changes that could be defined as economic development have also affected the labour market, including workers' income structure in response to transitions in industrial sectors. The market has been influenced in various ways by the economic reforms of 1991. One of the main features is that the participation rate in economic activities has not changed significantly, but it has been characterised by a decline since mid-2000. In terms of the employment structures, the employment rate in rural areas mainly related to the primary sector is on a downward trend. The rates in the secondary and tertiary sectors shows a rising tendency, which is interpreted as a result of industrialisation in earnest in India.

Furthermore, employment has increased in the private sector, unlike the decline in the public sector. The system in the labour laws that is considered inflexible has not changed significantly without the revision of related legislation, showing non-competitive states in international markets (Datta & Sil 2007). For reference, the labour market's flexibility means how flexibly it can be used in the labour market of economic agents and is a matter in conjunction with regulations in the market.

Besides, the Indian economy has grown centred on the tertiary sector during the economy's transition, rather than the secondary sector that is labour-intensive sector. After these changes, it shows that the industrial sector with the highest share of employment is the primary sector, followed by the tertiary and the secondary sectors since the 2010s. However, the proportionate employment in the primary sector has been declining over time, which is interpreted as the movement of labour force concentrated in the primary sector to another group. It turned out that the changes in employment structure results from the transitions of industrial sectors (Eichengreen & Gupta 2011). Additionally, these alterations have impacted the gender composition in the labour market since women workers have been generally more engaged in the primary sector than men, while men are more heavily employed in the secondary and tertiary sectors. Besides, these workers were generally seen as private sector-led, and employment in the public sector is further reduced because of the private sector's growth from the

effects of the economic reforms. Especially in case of the public sector, it is shown that most of the employment is concentrated in the tertiary sector. On the other hand, the private sector has been characterised by a high proportion of employments in secondary and tertiary sectors.

In particular, some argue that income inequality has increased as economic liberalisation progresses (Kumar, & Mishra 2008) from various angles when finding the result of changes in the labour market. In particular, trade liberalisation has not affected whole India but specific regions with a premium of industries. The problem after such reforms is that poverty has reduced only by a quarter even though the per capita consumption growth rate has doubled in 10 years (Sarkar & Mehta 2010) with regional discrimination in economic development, which means that the increase in income does not make up for the low group in terms of the distribution of the benefit. The poverty rate has increased in rural areas, with a large degree of trade liberalisation expanding the poverty gap between rural and urban areas (Topalova 2007). Due to trade liberalisation, it is differently affected by features such as regions, industrial sectors, and occupations. The poverty rate increased, especially in regions where industries related to the import market expansion have been concentrated. That is why some insists that trade liberalisation has limited effect on the inequality in terms of the distribution of wealth. On the other hand, there are some other claims that trade liberalisation helps to reduce wage premiums by industrial sectors (Amiti, 2012), improve the productivity of companies (Topalova & Khandelwal 2011), and decrease income inequality by reducing the difference in the income by industrial sectors (Kumar & Mishra 2008).

Furthermore, Thomas (2012) noted the problem is that job creation has been inadequate than expected in India despite continued economic growth since the 2000s. By employment elasticity, in particular, it shows that employment increased only in the primary sector but not in the secondary and the tertiary sector. Instead of a labour-intensive industry, the tertiary sector has been growing, but it showed a limit to employment growth at the same time. Furthermore, the additional factor about labour laws is only applicable to permanent workers, which leads to the increase in employment of casual workers such as contracts and temporary types in the labour market during globalisation, making the job unstable in the market.

The casual type worker is defined as employees who participate in non-permanent, short-term economic activities, etc., unlike permanent workers who receive

regular salaries from companies with lifetime employment. The wages of casual workers are usually lower than permanent workers with instability problem for employment conditions. More than 60% of Indian workers are included in the informal sector, giving rise to unequal income and poverty. These inequalities could bring in a factor that determines each individual's economic quality of life, regardless of personal endeavour. Moreover, workers in these precarious positions are very old or young and illiterate, or have low educational qualifications. It shows that the relatively low labour force belongs to unstable employments (Abraham 2016). These aspects of the casual type of employment will be explained in more detail.

2.1.3. Globalisation and Inequality

Many studies have shown the expansion of economic discrimination in various directions, including the labour aspect in terms of effects of globalisation, because of the imperfection of market not as expected (Birdsall et al. 2006), and they pointed it out in connection with the principle of growth in the globalization. This is related to the claim that the inequality of income is decided by labour productivity, which makes individuals or groups in rich conditions receive higher rewards in the labour market. It mainly makes the differences in wage compensation to be based on the alteration in industrial sectors over time from development. However, it is difficult to generalise because the effects of globalisation factors such as financial globalisation or foreign investment have made different results according to the environment (Jaumotte & Papageorgiou 2013), and some argue that globalisation has a different impact on each factor. There is another opinion that the country's trade liberalisation affects the wage gap, depending on the industrial sectors (Reilly & Dutta 2005).

According to some research on the good side, the factors that have led to some positive effects have also led to issues related to wage inequality, including discrimination and job security, to expanded in globalisation. Fischer (2003) argued that the adverse effects on income distribution are uncertain amid globalisation. Also, Tiwari (2011) suggested that openness for trade distinctly has affected income structures and technological development from the innovation increased the demand for the high skilled person in the labour market. For example, the need for skilled workers has been increasing in Indian manufacturing due to the technological changes that improve productivity. (Abraham 2010). However, the activation of foreign direct investment (FDI) with trade-in India led to export-oriented industries, which led to

many low-skilled workers' employment and increased the wage gap according to ability (Banga 2005). Klein et al. (2013) remind us why hiring highly skilled workers for more export through international trade, paying higher wages to them is spreading wage inequality. However, such highly skilled workers can be connected to going through a higher curriculum of education, showing higher productivity, making it possible to earn higher wages and improve their quality of life (Moretti 2013).

Moreover, some studies have suggested the fundamental impact of inequality on the competence levels of the individual from the view that technological development accounts for income inequality. The relationship between these transitions and wage inequality shows that it is different according to the groups related to the individual ability of proficiency. Those who have high-skilled usually show high productivity, so they could be compensated with higher rewards than low-skilled workers, which means that processes of the advancement of science and technology with the economic development are intensifying the issue of wage inequality, showing results that illustrate the importance of human resource development such as an education factor that is explored in next chapter. Furthermore, people in upper brackets of income have been distinctly granted special favour from the increased wealth by the trade, especially exportation. However, small income earners have substantially ruled out from benefits (Azam 2012). Besides, such inequality could be enlarged by discriminatory factors that are indefinable from earlier studies. Therefore, it has shown the limitations over the growth rate of real wage for most workers, which could be a factor leading to expansion of income inequality in the labour market.

2.2. Wage and Human Capital Theory

2.2.1. Wage Determination

Wages generally means compensation such as salary, extra pay, and kind that workers receive for the labour that they provide in work. Issues related to the wage amount has also been continuously discussed through various viewpoints over time after the manifestation of labour activities. First, Ricardo (1926), an economist of classical political economy, claimed that the wages are decided through natural price converged to a survival level for workers such as the necessaries and conveniences only for their living in the long term. In other words, the labour supply becomes excessive if the rise in wages exceeds the survival level. However, the supply will decrease due to

hunger, illness, etc., if wages fall below the survival level, which shows that the wages remain at the lowest level only for worker survival in the present capitalist society in the long run (Bradley 2007). However, Marx & Engels (1902) criticised that these parts are the characteristic of labour activities in view of capitalism and suggested one other labour theory of value, which means that wage has a relationship with the labour force, the source of the value of goods with surplus-value.

Moreover, another theory regarding wage decisions has been stipulated in terms of effects of various factors. Mill (1884) wrote that workers' supply determines wage levels as the total wages paid to workers are fixed in the market, known as wage-fund theory. Clark (1908) also suggested a theory of marginal productivity which means that labour capacity is determined based on the marginal product of labour on the demand side, and labour participation is settled on the wage in terms of the supply side, making the equilibrium point of both sides of labour. However, another concept, such as the efficiency wage theory, argues that workers' productivity is fixed by the wages as insisted by Akerlof & Yellen (1986). For example, paying higher than the equilibrium wage in the labour market help increase their productivity with profit maximisation. Thus, theories in various perspectives have been discussed regarding wages determination.

2.2.2. Human Capital Theory

In the research trends, one base theory of the wage determination in economics is the human capital theory. It suggests that the wage is determined in proportion to the capabilities and skills that belong to workers and introduces productivity into human labour based on the knowledge and skills accumulated through education and training in society. Additionally, the process of investment in human capital can be taken by other educational forms such as training, work experience, job-seeking processes, transitions and training in addition to regular education. In economics, human capital is defined as groups that enable creating economic value by using the tangible and intangible capabilities of individuals in the labour market. Besides, the learning model shows human capital presents a natural skillful situation to help to become an expert in activities such as workers' labour activities without investment by using separated time. In other words, low productivity in companies is the consequence of poor or no investment in human capital. It automatically brings down the production cost. Therefore, it shows that productivity could be increased by investing in human ability,

including knowledge, technology, creativity, and experience, which means human capital could be promoted with income, indicating a proportional relationship (Minica 2011). Erosa et al. (2010) suggested that the Total Factor Productivity (TFP) would be affected based on the accumulation of human capital in a classified territory.

In short, the concept for human capital, that the productivity accumulated through education is ultimately connected with labour income, emphasises the investment effect of education. It is possible that an individual's human capital, and environmental factors could act simultaneously. The results from human capital are outcomes like material things, when something is achieved using one's human capital, such as knowledge, passion, motivation, and health. The theory has been introduced into economic analysis since William Petty and Adam Smith's days in the 16th and 17th centuries. Smith (1937) especially interpreted for the first time that human capital factors in the competition and technological innovation can be acquired with abilities. However, as stipulated in earnest by Schultz (1961), the concept of human capital as acquired skills and knowledge in connection with academic economics has been introduced into economic analysis and accepted from the late 1950s.

An early explanation for the human capital theory has been that education and training increased workers' productivity and provided them with useful knowledge and skills to increase their income for their lifetime. At that time, the concept of human capital became dominant in economics related to education, affecting labour market analysis, wage decisions, and other economic areas such as economic growth in terms of population research. These are based on the idea that human-owned skills, knowledge, and attitudes are resources and these human capitals make up a significant part of society's available resources as a whole. Becker (1964) suggested that individual investment in education and training is the same as corporate investment in machinery or factories. The critical point is that human labour is not merely on the scale of the number and time of only one person or depends on how much education and training that person received. Instead of simple figures, it is virtually connected with society's level of human capital that can achieve economic outcomes with productivity and rises with increased investment in knowledge and passion, motivation, training, etc.

As a result, the theory suggests that human capital can influence labour productivity through technology, knowledge, information, etc., as described above. These accumulations of human capital can generally improve productivity through

schooling and work training, spatial mobility and health enhancement. These investments usually have been leading in social dimensions such as individuals or governments. For example, Bhat & Siddharthan (2013) observed that a high level of education acted as a source of abundant supply of labour and increased workers' productivity in India. Therefore, plentiful human capital is connected to productivity with increase in individual labour income, and the concept of these has been understood as an investment. Cases in several countries also shows that development from educated and trained human capital has a statistically positive correlation with economic growth, which means that the national education system is connected with economic growth.

Many studies have shown the positive impact of education on increase in national income. Denison (1962) reported that education contributed about 23% to the growth rate of national income in the United States during the period 1929-1956 as a return to investment in education as shown by their analysis of the contribution of education to the growth of national income. From societal point of view, the abundance of an individual's human capital or an organisation and society means that society's efficacy is high with a suitable allotment of workers who have effective productivity in the system. (Huffman 1977). It helps predict that participation and involvement with spontaneity will occur when an individual's sense of efficacy develops into a sense of collective efficacy in specific groups. Human capital has played an essential role in experiencing satisfaction as a member of society in terms of social compensation. When human capital is abundant, it is possible that the treatment within a job or occupation is better in the market in terms of promotions or salary increases that are also tangible career indicators. These results make workers invest more in human capital to achieve rewards as a single entity in the system, bringing a virtuous circle in the economic structure.

Academically, the human capital component plays a vital role in economic growth and technological progress from a macroeconomic perspective. The Endogenous Growth Theory that emerged in the late 1980s also focuses on the growth effect of economic policies that increased incentives for human capital investment. The theory of endogenous growth theoretically proved the growth effect of government policy by modelling the path of impacts of policies to human capital and growth rate, proposing that R&D progress would be sustained endogenously. Both physical and human capital would be accumulated simultaneously to enable sustainable economic growth without the perceived marginal productivity of capital. Especially, Lucas (1988)

noted that human capital factors play a decisive role in such economic growth to promote the growth of knowledge capital. Based on the theory, people make more investments if there is a higher rate of returns to human capital investment, which will increase the long-term growth rate. Therefore, the policy to increase the return rate on capital investment has promoted growth and has been adopted by many developing countries.

However, there are some criticisms of human capital, such as education for people is a process of forming human capital. According to Arrow (1973), education is not the method for increasing workers' productivity but merely acts as a screen role, as information to filter each individual with a naturally high ability and personal traits to produce their outcome efficiently. It indicates that the concept of human capital is connected to the theory of signal function and is used to transmit information on the person's ability by utilising it as a means for companies to distinguish between competent and incompetent persons through education quality. Another criticism is that humans are considered one of the resources to measure productivity by artificial process. The world described by Heidegger (1929) is realised by making the factory that utilises human resources for profits. It could imply that a human's life has degenerated into economic efficiency with sameness between humans and machines.

2.2.3. Wages and Human Capital Theory

These concepts of human capital theory can also be linked to income inequality to explain the unfair phenomenon. In other words, there has been a difference in income depending on ability in terms of educational background. It shows that people having a high educational experience generally have a higher income than people with a low educational background. Even if the number of careers increases, there could be specific limits to the increase in incomes. When workers' educational background is high, it shows in the form of an increase in their income depending on their knowledge and skills, which increases the income gap. However, it seems necessary to consider whether such opportunities for education and training are given to all, and these topics will be discussed later. Income inequality has been significantly affected by human capital; many countries have sought to reduce human resource inequality (Castelló & Doménech 2002).

In addition to this essential recognition, based on human resource theory, individual wage gaps begin to occur in concepts such as experience, occupation, and

class, in reality, making various compensation systems as follows. First, the seniority system related to the experience of a career is a system in which wages are determined according to seniority and the length of service of workers. In other words, the effect of education and training through long-term work is to compensate for higher wages and stabilise the organisational structure. Second, there is another system, showing that wages are paid according to simple criteria based on the same wage for the same ability as a system for determining wages based on abilities required for a job, which causes the self-development of workers. Third, determines wages based on the job standard according to the position of job, and determines wages by considering the quantity and quality of labour at the same time. However, these rewards have a limit on subjective evaluation.

Naturally, some uncertainty has happened about individual productivity in connection with these theories. It shows a function to distinguish people who meet the conditions of ability based on education and training. However, workers are unsure of their abilities when introduced into the labour market. Besides, various variables other than human capital could influence such productivity. As such, there is a lot of uncertainty about connecting the education sector to productivity through the labour process. Besides, it is inhumane to recognise human beings as mechanical entities assessed by simply inputting them to workplaces, as mentioned earlier. Some recent studies shows that unemployment of workers who belong to high-income jobs or are highly educated has been increased in the job market, which could be counterexamples for human capital theory ideas. Also, there are opinions that it is challenging to clarify the impact of human resource development on the country's economic growth since effects on economic growth should be examined in the long-term with various angles, making it difficult to measure the effects of human resources in specific space objectively.

However, despite these objections to the theory, various developing countries recognise the importance of education and training processes to improve workers productivity in their positions. In India's case, it indicates that a systematic education system is necessary based on investment in education to expand human capital to make people productive for development based on the above-mentioned endogenous growth theory. Therefore, India needs to consider ways to maximise human capital in the labour market. In other words, it is required for sustainable growth through innovation through

a virtuous cycle growth structure, and many young people in India could be utilised as human capital to develop new technologies and business models for India shortly.

2.3. Discriminations in the Labour market

2.3.1. Discrimination in Labour

Humans have provided a workforce and engaged in labour practices to acquire wealth and to survive in the labour market. However, the present concept of the labour market, in which the labour force is traded as a labour-power commodity, has led to emeregence and establishment of a capitalist economic system. The existence of the labour market could be an essential feature of the capitalist economy. The capitalist economy's production activities are realised through the exchange of labour in the market. The market has worked with the living standards of workers in capitalist societies. The business interests of capitalists are dependent on how they determine the conditions for trading the labour force in the labour market in the view of the neoclassical school. The labour force prices in the labour market are determined by its supply and demand in mainstream economics. However, supply-demand in the labour market is compounded by various factors, such as qualified workers. In the process, the naturally arising inequality has been caused by individuals and groups of society worldwide. These discriminations would be connected to disparity for the next generation in terms of wealth gains along with the disparity in benefits that decide the quality of life such as education, health and welfare opportunities for workers (Pickett & Wilkinson 2009).

In general, it is assumed that equal pay for equal work in the labour market is a thoroughly competitive market in terms of economics. However, there is a tendency for wage disparities to occur depending on diverse factors like gender, educational background, and race, in reality these could be related to discriminations in the labour market, showing the members of a particular group cannot be adequately given the guaranteed treatment based on their ability or productivity of labour activities. According to Becker (2010), there are four forms of discrimination in the labour market. The first is discrimination by consumers, which means that consumers tend not to use specific groups' goods or services. Second, it tends to show groups that prefer discrimination by employers. Third, we can see discrimination by members in the workplace as discrimination by colleagues. Finally, it can occur because a company has

a low productivity expectation value due to a lack of information on workers of specific groups for instance, caste stereotypes in India.

In short, discrimination in the labour market is defined as the case where workers who have the same productivity are unfairly treated due to their distinctive characteristics. In terms of income, such discriminations lead to upper groups in the wage distribution to benefit from the wage premium effects. However, the groups who have suffered from discrimination have lost rewards for their work. Moreover, groups that are subject to discrimination in the long term has been designated to fixed economic roles with limitations, and their economic status can continuously belong to a subgroup in the community without fluctuation of classes such as transfer of the economic status from the parent to their children (Corak 2006). For instance, children from these subgroups may lose opportunities such as education, experience and higher rewards in the view of human capital theory, which makes hardship in economic class mobility.

However, it is also difficult to distinguish it from discrimination part in the labour market. For example, it is challenging to define differences in the employers' personal preferences and human resources as discrimination. On the other hand, some argue that structural discrimination may be a result of the labour market structure, where an inefficient market occurs due to incomplete information from the market. The problem is that these processes can hinder economic growth by eliminating innovative development and expanding social rigidity in terms of hierarchical mobility. Aghion et al. (1999) stated that economic inequality makes investment opportunities decrease with the decline in incentives, adversely affecting growth. This is why methodical approaches are needed for these areas to thoroughly examine the causes of the disparity in wages, which is covered in the next chapter.

2.3.2. Causes of Wage Disparity

The causes of these wage disparities have also been analysed from various perspectives. First, it was stipulated by the neoclassical school as a result of factors such as short-term imbalances of labour, differences in productivity or efficient wage policies based on the market like competitive factors, which is mainly interpreted as a cause depending on the productivity of workers in the market. The highly competitive market states that the labour market has one integrated structure. All workers are free to move between jobs and select their desired positions without any market restrictions. These ideas bring a balanced equilibrium with the supply and demand of the labour

force. From this point of view, the employment placement and wage levels are determined according to the labour force's abilities such as knowledge, experience, and experience of workers in view of the human capital theory as mentioned early.

Second, another theory focuses on external factors such as labour market division, corporate wage policy, and trade unions. It presents an idea of analysing the labour market from a structural point of view since there are some limits to explain its outcome due to personal factors from the human capital theory described above. The labour market is defined as a market in which labour is traded as a commodity between the labour force and the capitalist, including concepts that encompass the process of negotiations with institutional devices related to the determination of wages and utilisation conditions. Therefore, the external factors for the pursuit of profits help make wage differences in the labour market where labourers recruit jobs to sell their workforce, and capitalists suggest employments to buy the workforce.

Third, the Dual labour market theory has been proposed by Piore (1971) to show the reason for disparity from the structural view of the labour market. In particular, this theory is worth investigating in detail to understand the division between permanent and casual workers in the labour market. The theory of the divided labour market has emphasised on the stages of economic development and social, institutional, and monopoly capitalism in analysing the labour market. It argues that the labour market does not consist of a single homogeneous market but is composed of a definite dual structure that is divided into primary and secondary labour markets. The internal labour market mainly forms the primary labour market, showing that the wage level is relatively high, the working conditions are right, the opportunities for promotion are diverse, and employees' safety is guaranteed in the contract. However, the secondary labour market presents that wage levels are lower than others, working conditions are deplorable, and promotion opportunities are lacking. However, employment instability is particularly severe than in the primary labour market. The problem is that workers who have already been in the secondary sector have difficulty entering the primary sector due to the preliminary qualitative evaluation and costs of retraining the workers (Gottfries & McCormick 1995).

Generally, there are some theoretical backgrounds behind the formation of such a divided labour market structure. Doeringer & Piore (1985) suggested that labour market functions have been transferred to the internal labour market for efficiency through emphasising various types of status and compensation within companies such

as factories and businesses. In other words, a series of processes related to employment is structured and controlled by internal rules and procedures, and wages are separated and determined by these procedures. These are related to the primary labour market, making them favourable conditions. Another theory explains that it stems from the strategy of the divisional rule of workers by capitalists. Finally, one theory focuses on the institutional factors in which some workers are protected by trade unions, labour relations laws and government policies.

In contrast, other workers are excluded from institutional protection. The analysis excludes external labour markets, especially low-wage labour markets, making it difficult to understand the labour market structure. Therefore, the theory based on employees' relative stability can be divided into the primary labour market and the secondary labour market. It brings about the sustainability of the working class in society's rigidity, showing the significance of being a structural approach.

2.3.3. Discrimination from Employment Types

In reality, the scale of wage inequality has expanded worldwide (Mazumdar 2008), and the increase of flexibility of the labour market could be one of the significant causes of discrimination. One study found that India tends to show flexibility in the labour market because labour laws are complex and ambiguous, paradoxically making the market flexible from at least one angle (Sharma 2006). However, there have been conflicting opinions regarding the pros and cons of the flexibility of India's labour market. In some studies, flexibility has helped increase employment in the labour market, but some disagree with this idea. Anyway, some problems have happened due to the flexibility of the labour market. It has been shown that permanent workers earn two to three times more wages than casual workers, and the wage gap is large in jobs requiring skilled labour (Kumar 2013).

In addition, discriminations except for productivity differences make the wage gap between the types of employment serious because of the low compensation for subordinate workers. Besides wage penalties, casual workers have faced an adverse environment for most sectors as well as low reward due to their employment types. For example, the secondary sector's casual workers have continued to work in economically vulnerable groups, and they have also been excluded from benefits in wage and social security, and they also get a minimum wage. Despite low treatments, they work in more dangerous working conditions, and such workers can continue to be

in poverty (Das & Pandey 2004). In terms of fairness, inequality from employment type could be widened because wages continue to rise despite the limited increase in productivity of regular workers who continuously tenure and work (Mazumdar & Sarkar 2008).

However, the problem is that casual employment has continued to increase globally, including OECD countries (Cazes & de Laiglesia 2014). The share of contract workers in India also increased in the 2000s, making the wage inequality worsens in reality (Sundar 2011). Companies have increased their profit margin in the competitive market made by the economic liberalisation in India. (Madheswaran & Attewell 2007). Along with the economic reforms, India's employment structure has changed with the increase in contract workers, mainly aiming to reduce costs rather than differences in labour productivity (Bhandari & Heshmati 2006). Employers can continue to pursue their profits more through the recruitment of these types of labours with contracts. However, discriminatory labour compensation could be an obstacle to consistent economic growth in the long term. Additional compensation from workers' skill abilities, as mentioned earlier, has developed various forms of inequality, including employment types from multiple effects.

In addition, the shares of casual workers have increased across all industries regardless of region and appear to be more common in the indigent areas (Naik 2009). The quality of contractual employment is estimated to be relatively low as the discrimination between regular and contract workers continues in a complicated environment. (Bhalla 2008), so workers of this type have suffered from insecurity in their position and various discriminations. Therefore, it is time to debate this issue from diverse perspectives of the labour market and inspect employment types in India that have sustained economic growth to prevent the interruption of development from inequality.

Thus, various problems such as wage inequality, discrimination and rising insecurity of employment have been rising in the labour market in the economic development process, and such issues have continued so far in India (Bhandari 2006). According to the employment types, the wage gap has also increased over time, and there have been many studies regarding this problem. In particular, wages in these studies appear to be more poorly rewarded as well. In particular, the wages according to them, in the public sector are decided in the minimum wage range, while private companies have awarded a little more for skilled workers, but smaller firms find it more

difficult to pay higher wages. (Rajeev 2009). Given these problems, the minimum wage may also be significantly linked to wages for casual workers. The gap between permanent and casual workers appears to be more significant for wages in the upper group (Das, P., 2018), indicating the limitations in increase in casual workers' wages. Besides, one paper has suggested that wage inequality among permanent workers rose because of human capital differences, such as age and education. Similarly, the industry that workers belong to plays an essential role in these changes (Dutta 2005), which as these formations shows worsened the gap of economic compensation in general.

As a result, these changes in India's labour market have been inevitably connected to the consequences of globalization with economic trends. The problem is that wage inequality can have a long-term negative impact on national economic growth, such as limitations of investment growth scale (Herzer & Vollmer 2012). Wage inequality that has been caused by discrimination other than productivity can lead to labour market inefficiency and instability in continuous economic development. Therefore, as mentioned in the next chapter, this study looks at the current situation through statistical data and examines the inequality in wages according to employment types in industrial sectors.

CHAPTER 3

TRENDS AND PATTERNS

This chapter examines industry trends and employment patterns by utilizing Gross Domestic Product (GDP) data according to industrial sectors and National Sample Survey (NSS) statistics in India to understand changes in tendencies and the current situation of the labour market in India.

3.1. Gross Domestic Product (GDP)

This part explores contributions according to the industrial classifications to the national economy based on GDP data with the assumption of a connection between workers' wages and the changes in industrial sectors in India. In other words, it helps understand the characteristics of the labour market compared to the economic size of each industrial sector through the number of workers in each industrial sector. These factors could affect structures of income according to the outputs of each industry.

Table 1 shows GDP trends by industrial sector based on current prices from 1970-71 to 2012-13, indicating the growth and shares of agriculture, manufacture, and service sector in overall GDP. GDP is defined as the monetary value of all finished goods and services made in a nation for a specific period. GDP has grown more than 210 times over the 40 years in terms of absolute value, and it shows that the share of each sector has also changed in the total GDP. One thing to note is that the growth has continued but showed a clear upward trend only after the economic reforms, especially in the 1990s. Moreover, it shows that the increase in the service sector led to overall growth in the economic scale, and there is an increase in its share in the GDP. The share of agriculture that is the central part of the primary sector in the 1970s is recorded about 37%, akin to that in the service sector, but has fallen to 15% in 2012-13.

Conversely, the shares of the service sector rose to 57% in 2012-13. In the case of the manufacturing industry, it has increased from 20% to 26%, showing that it has maintained a gradual continuous growth. These results point out that the share of agriculture that is commonly considered a primary industry has continuously decreased. In contrast, the scale of the service sector has increased in economic production in India. The nation has shown such changes clearly with economic development, which means

that it is worth finding out that how they have affected the labour market through NSS data, mainly focusing on workers' income according to the sectors.

Table 1. Gross Domestic Product (GDP) with industrial sectors

Year	GDP at current prices (in 10 billion INR)				Shares to GDP at current prices (%)		
	Total	Agriculture	Manufacture	Services	Agriculture	Manufacture	Services
1970-71	44.4	16.4	9.1	16.5	36.9	20.5	37.2
1971-72	47.2	16.6	10.0	18.1	35.3	21.2	38.4
1972-73	51.9	18.3	11.1	19.9	35.2	21.3	38.3
1973-74	63.7	24.2	12.8	22.8	38.0	20.2	35.8
1974-75	74.9	26.3	16.1	28.2	35.1	21.5	37.6
1975-76	79.6	25.9	17.7	31.9	32.6	22.2	40.1
1976-77	85.5	26.4	20.1	35.0	30.8	23.5	40.9
1977-78	97.6	31.4	22.7	38.5	32.1	23.2	39.5
1978-79	104.9	31.9	25.5	42.1	30.4	24.3	40.1
1979-80	114.5	32.7	28.6	47.3	28.6	25.0	41.3
1980-81	136.8	41.3	33.2	54.6	30.2	24.3	39.9
1981-82	160.2	46.4	40.3	64.7	29.0	25.1	40.4
1982-83	179.0	49.7	45.1	74.3	27.8	25.2	41.5
1983-84	209.4	59.8	52.8	85.4	28.6	25.2	40.8
1984-85	235.1	64.3	60.1	98.3	27.4	25.6	41.8
1985-86	262.7	68.9	67.5	113.1	26.2	25.7	43.1
1986-87	292.9	73.6	75.8	129.0	25.1	25.9	44.1
1987-88	332.1	81.8	86.1	148.1	24.6	25.9	44.6
1988-89	396.3	101.9	102.2	173.1	25.7	25.8	43.7
1989-90	456.5	112.0	121.1	201.7	24.5	26.5	44.2
1990-91	531.8	131.1	140.9	234.9	24.7	26.5	44.2
1991-92	613.5	154.4	155.8	275.8	25.2	25.4	45.0
1992-93	703.7	172.8	181.3	318.3	24.6	25.8	45.2
1993-94	818.0	200.1	208.6	372.8	24.5	25.5	45.6
1994-95	955.4	230.0	252.3	430.2	24.1	26.4	45.0
1995-96	1118.6	250.4	306.5	515.2	22.4	27.4	46.1
1996-97	1301.8	302.7	346.3	598.2	23.3	26.6	46.0
1997-98	1447.6	318.2	382.3	686.9	22.0	26.4	47.5
1998-99	1668.7	367.8	429.6	805.3	22.0	25.7	48.3
1999-00	1858.2	389.4	468.7	934.2	21.0	25.2	50.3
2000-01	2000.7	388.7	520.2	1019.9	19.4	26.0	51.0
2001-02	2175.3	420.6	545.6	1131.0	19.3	25.1	52.0
2002-03	2343.9	404.5	613.4	1245.4	17.3	26.2	53.1
2003-04	2625.8	459.2	683.0	1398.2	17.5	26.0	53.3
2004-05	2971.5	476.6	829.8	1576.3	16.0	27.9	53.1
2005-06	3390.5	536.8	953.9	1798.9	15.8	28.1	53.1
2006-07	3953.3	604.7	1140.2	2090.1	15.3	28.8	52.9
2007-08	4582.1	716.3	1330.3	2415.3	15.6	29.0	52.7
2008-09	5303.6	806.6	1500.3	2860.1	15.2	28.3	53.9
2009-10	6108.9	928.6	1695.8	3329.6	15.2	27.8	54.5
2010-11	7267.0	1132.0	2003.3	3956.7	15.6	27.6	54.5
2011-12	8353.5	1268.1	2233.2	4654.6	15.2	26.7	55.7
2012-13	9461.0	1418.7	2436.5	5379.7	15.0	25.8	56.9

Data: Central Statistical Organisation (CSO)

Economic growth has been accompanied by urbanization steps with the economic development in India. It means that the population is concentrated in a specific area with a high population density, showing the number of workers in the non-primary sectors. Such GDP changes have impacted the labour market like a decline in employment in rural areas. The primary sector is a major sector with an increase in employment in the secondary and tertiary sectors in urban areas since economic reforms in the 1990s.

Table 2 clearly shows the transition in percentages of workers by sectors and table 3 shows the transition of daily wage workers by industrial sectors using multiple rounds of NSS data. The shares of workers across sectors indicates a similar trend as the change in the sector's share in GDP. In the case of the primary sector from 1987 to 1988, it accounts for about 50%. Over time, the proportion declined to just 32% in 2011. On the other hand, the tertiary sector share was only 30% from 1987 to 1988 and rose to about 45%, indicating that the number of workers of the tertiary sector increased with the development in this sector. In secondary sector, it has risen slightly from 18% to 23%. These results speculate on whether related workers have also increased based on the expansion of the economic scale of associated sectors resulting from the increase in GDP.

In the case of the daily wages in table 3, the gap has expanded largely over time according to sectors due to significant differences in the growth. In the case of the primary sector, the rise is visible, but the change seems to be limited than in other sectors. On the other hand, the figures have been almost the same in the case of the secondary and the tertiary sectors. In particular, the salary distinctly increased with continued economic growth from 2004-5 to 2009-10. These results exhibit that the wages of workers are different in each sector. The range of gaps has been expanding over time, suggesting that the wages are affected by the industrial sector that workers are affiliated.to. These simple differences in industry-specific wages per day are expected to be caused by differences in industrial sectors' characteristics and productivity. However, more research is needed to find the trend and the cause of these results precisely.

Table 2. Number of workers by industrial sectors

	Periods					
	NSS 43th (1987-88)	NSS 50th (1993-94)	NSS 55th (1999-00)	NSS 61th (2004-05)	NSS 66th (2009-10)	NSS 68th (2011-12)
Primary sector	155,590 (52.3%)	137,292 (55.8%)	133,503 (51.3%)	127,797 (49.4%)	70,045 (39.2%)	64,052 (32.3%)
Secondary sector	52,556 (17.7%)	36,684 (14.9%)	44,915 (17.3%)	47,659 (18.4%)	41,908 (23.5%)	45,905 (23.1%)
Tertiary sector	89,144 (30.0%)	72,047 (29.3%)	81,588 (31.4%)	83,059 (32.1%)	66,664 (37.3%)	88,988 (44.7%)
Total	297,290	246,023	260,006	258,515	178,617	198,945

Data: National Sample Survey (NSS)

Table 3. The daily wage of workers by industrial sectors (in INR)

	Periods					
	NSS 43th (1987-88)	NSS 50th (1993-94)	NSS 55th (1999-00)	NSS 61th (2004-05)	NSS 66th (2009-10)	NSS 68th (2011-12)
Primary sector	1.31	21.95	42.78	51.03	94.13	136.80
Secondary sector	21.71	51.24	110.5	106.4	177.20	236.91
Tertiary sector	23.79	72.74	144.12	164.18	331.20	443.24
Total	10.40	25.82	108.58	121.97	228.04	313.99

Data: National Sample Survey (NSS)

3.2. Composition of Employment Types

This chapter tries to examine the differences in daily salary according to the types of employment in India. Tables 4 and 5 indicate the proportion of workers and daily average wages by employment types in India. The sample's current state shows that workers in permanent jobs have a similar proportion as casual workers. There was no significant change in the composition in comparison with the total sample on the data.

On the other hand, it expresses that daily wages increased in both cases. However, there is a significant difference in the rate of increase when checking the average wages by employment types, indicating wage disparities by employment types. Therefore, economic growth has led to a rise in outcomes associated with wages, but

the wage of the permanent position has risen significantly without productivity verification. Such a tendency may take the form of labour market inflexibility due to wage inequality from employment types.

Table 4. Number of workers by employment types

	Periods					
	NSS 43th (1987-88)	NSS 50th (1993-94)	NSS 55th (1999-00)	NSS 61th (2004-05)	NSS 66th (2009-10)	NSS 68th (2011-12)
Household enterprises	145,980 (19.1%)	136,475 (22.1%)	137,325 (19.6%)	155,609 (22.8%)	96,359 (19.3%)	94,874 (19.2%)
Permanent type	73,821 (9.7%)	48,694 (7.5%)	56,250 (8.0%)	46,572 (6.8%)	39,407 (7.8%)	41,810 (8.4%)
Casual type	55,200 (7.2%)	52,180 (8.1%)	55,921 (8.0%)	47,672 (7.0%)	39,689 (7.9%)	37,410 (7.6%)
Total	764,944	647,279	700,932	682,506	500,262	495,016

Data: National Sample Survey (NSS)

Table 5. The daily wage of workers by employment types (in INR)

	Periods					
	NSS 43th (1987-88)	NSS 50th (1993-94)	NSS 55th (1999-00)	NSS 61th (2004-05)	NSS 66th (2009-10)	NSS 68th (2011-12)
Permanent type	54.92	76.07	170.37	184.46	343.43	440.98
Casual type	5.64	23.46	45.71	58.02	108.35	157.44
Total	10.40	25.82	108.58	121.97	228.04	313.99

Data: National Sample Survey (NSS)

3.3. Composition of Employment Types by Industrial Sectors

Tables 6 and 7 show the shares of workers and the average wage related to employment types by industrial sectors. In the case of the primary sector, it shows that the number and percentages of both types have been decreased, unlike other sectors due to the decreasing scale of the sector. However, it turns out that the direction of change for permanent and casual workers in the secondary sector is different. The total number of samples decreased, with a decline of the shares. Despite the growing size of the secondary sector, the workers of permanent positions have limitations. However, the

proportion of absolute value of number of casual workers seems to have increased significantly since the 2000s. It shows that the quality of employment has definitely not improved despite the growth in the scale of secondary sector. However, it indicates different pattern in case of the tertiary sector. When it comes to permanent employees, the absolute value is also retained, and the specific gravity is expanded continually. As for casual workers, however, the proportion remained similar over time. It means that the employment market has been improved by developing the tertiary sector as shown by statistical analysis.

In terms of average daily wage, figures also have risen generally, but they are different according to the employment types. It could be estimated that the growth associated with the economy's expansion widens the wage gap between types of employment. The wage disparity between permanent and casual employees by industrial sectors has widened over time. In particular, daily wage appears to be about double that of existing ones between 2004-05 and 2009-10, which suggests that the absolute differences continue to widen with similar increases in existing small salaries of workers who belong to casual positions. In particular, wages for permanent workers in the tertiary sector have risen sharply, but there are limits in the primary sector. Besides, it shows delinquency in the rise of the wages of casual workers for all industrial sectors. Differences in these amounts deepens the inequality in the income distribution of India's labour market, which needs to be studied further because it could make limitations to the growth of the economy. Based on these prerequisites, the next chapter explains methodologies to systematically analyse the structure of the wages according to categories related to the topic of the study.

Table 6. Number of workers by employment types in industrial sectors

		Periods					
		NSS 43th (1987-88)	NSS 50th (1993-94)	NSS 55th (1999-00)	NSS 61th (2004-05)	NSS 66th (2009-10)	NSS 68th (2011-12)
Primary sector	Permanent type	7,687 (2.6%)	4,028 (1.6%)	4,576 (1.8%)	1,913 (0.7%)	954 (0.5%)	782 (0.44%)
	Casual type	33,678 (11.3%)	33,570 (13.6%)	34,537 (13.3%)	24,282 (9.4%)	16,789 (9.4%)	11,518 (6.5%)
Secondary sector	Permanent type	18,384 (6.2%)	11,691 (4.8%)	13,565 (5.2%)	10,304 (4.0%)	8,334 (4.7%)	9,457 (5.3%)
	Casual type	13,785 (4.6%)	10,909 (4.4%)	12,626 (4.9%)	15,692 (6.1%)	18,785 (10.5%)	19,061 (10.7%)
Tertiary sector	Permanent type	47,748 (16.1%)	32,975 (13.4%)	38,109 (14.7%)	34,355 (13.3%)	29,759 (16.7%)	31,571 (17.8%)
	Casual type	5,512 (1.9%)	5,443 (2.2%)	6,369 (2.4%)	5,640 (2.2%)	4,115 (2.3%)	3,471 (2.0%)
Total		297,290	246,023	260,006	258,515	178,617	177,550

Data: National Sample Survey (NSS)

Table 7. The daily wage of workers by employment types in industrial sectors (in INR)

		Periods					
		NSS 43th (1987-88)	NSS 50th (1993-94)	NSS 55th (1999-00)	NSS 61th (2004-05)	NSS 66th (2009-10)	NSS 68th (2011-12)
Primary sector	Permanent type	6.97	37.85	92.42	109.82	207.70	281.78
	Casual type	4.12	20.38	38.06	46.60	87.03	126.92
Secondary sector	Permanent type	53.99	71.69	156.51	157.80	296.74	367.10
	Casual type	7.38	30.31	61.14	72.51	123.55	172.66
Tertiary sector	Permanent type	41.78	80.82	182.14	196.48	360.84	467.18
	Casual type	12.13	28.75	56.58	66.77	116.37	174.93
Total		10.40	25.82	108.58	121.97	228.04	313.99

Data: National Sample Survey (NSS)

CHAPTER 4

DATA AND METHODOLOGY

4.1. Data

This study analyzes a sort of panel data of many cross-sectional units on several occasions of India Human Development Survey (IHDS) from 2004-05 to 2011-2012 reported by the National Council of Applied Economic Research (NCAER) and the University of Maryland to investigate the sample. The data includes personal information of 215,754 individuals for 2005-06 and 204,565 individuals for 2011-12 in about 40,000 households in India, including different dimensions of human resources like education status, caste, gender relations, and individual infrastructure, unlike other single-topic surveys. The research objective is only intended for workers belonging to the economically active population (age 15-59 years), as defined by India's census, during the survey period. The number of analyzable units in each industrial sector that contains the necessary information is about 30,000, so the total sample size is more than 90,000 for two-time series.

4.2. Variables

This study uses the variables shown in table 8 to reflect personal characteristics regarding labour activities. Many related studies have suggested valid determinants of individual wages and tried to research the wage disparity to explain increasing economic inequality by using personal characteristics such as gender, corporate and occupation, etc. Unlike previous references, this study tried to consider diverse regional characteristics in India, applying factors such as residential districts for a large population in the vast territory.

As for independent variables, careful consideration is necessary to examine whether to use the dependent variable as the monthly wage or the hourly wage to find determinants regarding income factors as the objective amount of the individual wage should be calculated to make full use of the analysis. Thus, the hourly wage is decided as an independent variable to analyse wages to reduce variability in each worker's work pattern and understand the productivity of each labourer for a fixed time. In addition, the hourly wage is converted to the value of the natural logarithms to make the

relationship between the dependent and independent variables a linear relationship because the coefficient value helps to understand the effects of the independent variables clearly from analysis results in the next chapter. For example, it could be interpreted as the dependent variable will increase by 50% with a unit increase in the value of a particular independent variable, the coefficient of the independent variable will be 0.5 in an analysis done by taking the logarithm of the dependent variable.

The wage could be analyzed by various explanatory variables such as household, individual, labour market characteristics, and social environment in India, as mentioned earlier. Previous studies have suggested that explanatory variables such as education, age, and geographical location play essential roles in economic activity (Cuberes, D., & Teignier-Baqué, M., 2012). Therefore, this study has also adopted these three characteristics as explanatory variables that could affect wages within the large scheme that extends variables on Mincer's estimation equation to include: Personal properties, Religious attribute, Regional element. The details of explanatory variables are presented in table 8 for econometric model analysis henceforth.

First, this study examines the effects of features such as gender, educational state, and marital status as personal characteristic factors. These characteristics represent elements related to the individual's human resources, which could be eventually linked to income structures in a society. Gender has also played an essential role in determining wages for workers in the labour market in India for an extended period, limiting the labour activities of women in particular. Traditionally, women in economic activities have been relatively marginalized in India, showing significantly lower rates of economic activity for women than other countries. Many former studies, especially regarding the wages, have focused mainly on gender-based discrimination in industrial sectors.

Many papers show that education usually significantly affects income structure in the labour market, showing that rise in higher education is rewarded by a higher income. Therefore, this study tries to add years of education as a variable to find the effects on workers' hourly wages. The years of experience of workers could also be a valuable measure because the factor helps increase the productivity of each worker at the workplace, which could be connected with the high wages of workers. These procedures are associated with the accumulation of human capital in the labour market, as mentioned earlier in the previous studies. Besides, a variable of a squared value of the experience is added to verify the inverted U shape from (-) value of analysis results,

which means an individual's income will continually rise due to the accumulation of experience. However, it will slowly decline until retirement after middle age. Plus, the marital status or a spouse's presence could be used as a significant variable to explain family structures for each household to examine the effects that familial forms on workers' wages.

Second, factors related to religion and the caste have been found to have significant impacts on workers' wages, so these are also added to reflect India's unique social characteristics in this research. There have been many conflicts and discriminations in India with other religions, especially in Hinduism, which has affected labour markets. Moreover, the wages are biased because of the distribution of occupations according to the caste system. India's caste system has distinguished the social class from the past, and people who belong to the lower classes have suffered from discriminations, including economic disadvantage. These have been improved over time, but in actuality there are still invisible restrictions. Therefore, the system could still be a critical determinant of the individual wages due to unequal accessibility to jobs and discrimination of opportunity according to the class, which affects the wage gap of workers (Das & Dutta 2007). However, the wage disparity with respect to castes has been reduced due to changes in the structures of the industrial sectors after trade liberalization reforms that began in 1991 (Jacob 2006).

Finally, it is worth considering the influence of the area of residence since India has a vast area, making differences according to regions. For example, the area of residence i.e., rural and urban could be a proper variable that affects the wage disparities (Das 2012), which means that there may be regional effects from types of societies depending on the different location that people live in, so it will be used as a dummy variable to reflect the spatial concept. Furthermore, the study utilizes the idea that regional divisions in India are based on the States reorganization act, 1956 and the Northeastern council act, 1971, divided India into six areas. For example, the northern regions are the union territories of Chandigarh, National Capital Territory of Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab and Rajasthan, while the southern area includes Andhra Pradesh, Karnataka, Kerala, Puducherry, Tamil Nadu, and Telangana. In addition, the northeastern region has the state of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim. The eastern area consists of Bihar, Jharkhand, Odisha, and West Bengal states. The western region is composed of Dadra and Nagar Haveli and Daman and Diu, Goa, Gujarat, and

Maharashtra, which are added in the same way to reflect regional characteristics in the study to find the determinants of wages in India. Finally, central areas that include the states of Madhya Pradesh and Chhattisgarh are excluded as an explanatory variable in the analysis because of multicollinearity, which is highly linearly related by two or more explanatory variables in the regression model. To avoid a completely linear relationship in the model, one dummy variable should be excluded rather than including all the categories. The next part presents the basic statistics of variables mentioned from sample data in more detail.

Table 8. List of variables

Variables		Unit	Definition
Dependent variable	Hourly wage	Natural logarithms	Hourly wage of workers
Personal characteristic	Gender	Dummy	Male = 1 / Female = 0
	Education	Years	Completed years for education
	Experience	Years	Years of experience (= Age - Years of education - 5)
	Square value of experience	-	Square value of years of experience
	Marital status	Dummy	Married without absent (Yes = 1 / None = 0)
Caste types	Forward		Belong to Forward except for Brahmin (Forward = 1 / None = 0)
	SC & ST		Belong to SC & ST (SC & ST = 1 / None = 0)
	OBC		Belong to OBC (OBC = 1 / None = 0)
Religious characteristic	Muslim		Belong to Muslim (Muslim = 1 / None = 0)
	Christian		Belong to Christian (Southern = 1 / None = 0)
	Sikhism		Belong to Sikhism (Southern = 1 / None = 0)
Regional character	Region		The structure of the residence area (Urban = 1 / Rural = 0)
	North		The area of residence (North = 1 / None = 0)
	Northeastern		The area of residence (Northeastern = 1 / None = 0)
	Eastern		The area of residence (Eastern = 1 / None = 0)
	Western		The area of residence (Western = 1 / None = 0)
	Southern		The area of residence (Southern = 1 / None = 0)

4.3. Basic Statistics

Table 9 exhibits the basic statistics of sample data used in the analysis in detail, showing average values of each variable according to categories such as industrial sectors and employment types. It helps to understand the characteristics of the economically active population (age 15-59 years) in the sample data and the trends in India's labour market.

First, it shows statistical properties regarding compensations for all workers in India. The percentage by gender is about 50%, showing the similarities between males and females in the sample. Education years of workers have been recorded for 6.6 years, and experience years are about 21 years, showing occupation for 66% of the workers having spouses. This means that two-thirds are married in the data. In the case of the caste, Brahmin and Forward accounted for 5.5% and 20.4%, respectively, and the lower ranks of SC & ST and OBC accounted for 28.5% and 37.1%, separately. Workers who belonged to Hindu religion accounted for 82.5%, and Muslims at 12.6% are the second largest, indicating that Christians and Sikhs are only 2.1% each, concerning religion. In addition, it suggests that about 36% of sample live in urban areas, while 64% of those lives in rural areas. In the region's case, the northern, central, and southern parts record the level around 20%, indicating that they accounted for the considerable population distribution in data.

When we identify the employment types of the entire sample, workers who belong to the permanent type are only about 19.4%, which is more than four times lower than the shares of casual workers, which account for 80.6%. It indicates the instability of the employment market in India. The point is that the proportion of permanent employees varies depending on industrial sectors. Like the previous NSS data, it is only about 2% of the related industry workers in the primary sector, increasing by 13.3% in the secondary sector. On the other hand, about 46.9% is displayed as permanent employees for a tertiary sector, suggesting that the scales are similar to both types. In terms of the industrial sectors' shares, the primary sector's share is represented by 34.0%, the secondary sector by 31.6%, and the tertiary sector by 30.5%, indicating that the size of each industry is insignificantly different in the sample. Especially, the share of employment type depending on industrial sectors would be considered when interpreting the results of later analysis.

Second, it can compare the statistics between permanent and casual workers in the primary sector. The log-transformed value of wages for permanent jobs, shows 2.67, which is about 0.57 points higher, than the casual job wages at 2.10. In the case of gender, males indicate 75.7% of permanent employees, showing that the sector is male-led, while they accounted for 54.5% in casual types, which means the shares of females do not amount to much in the group. Regarding the education periods, the permanent workers show 5.4 years of education, 2.2 years higher than those of casual types. In the case of years of experience, the permanent type shows 27 years that is about three years higher than that for the casual type, and it is assumed that the age of workers has mainly influenced it. In the case of marriage, the share of casual workers is 79.3%, and it is 1% higher than those of permanent types.

In the view of caste, Brahmin and Forward classes are displayed at 2.5% and 12.2%, respectively, in the permanent type, indicating that the average share is small. On the other hand, in casual type, workers who belong to the Brahmin and the forward case are displayed at 0.7% and 9.4%, respectively, which shows that those of the type is smaller than others. On the other hand, the subgroup is characterized by a difference with 7% in casual workers in the case of OBC but the similarities with the those of SC & ST. In terms of religion, the share of Christians and Sikh workers are insignificant in permanent type of employment. However, those of casual types have been sharply reduced for Christians and Sikhs, unlike for Hindus and Muslims, which suggests that shares for casual workers are higher than others.

In the region's case, 75.7% of workers, the similar figure related to characteristics of the primary sector, have lived in rural areas. On a regional basis, the Northern, Northeast, and Eastern regions have a higher percentage of permanent workers. In contrast, the Central, Western, and Southern regions have accounted for a higher percentage of casual workers, which indicates that the regional differences in shares of employment types is significant in the data.

Third, the wages of permanent workers and casual workers are 3.32 and 2.67, with a difference of 0.65, showing a high gap between the primary sector and the secondary sector. In the case of permanent workers in the secondary sector, males accounted for about 90%, indicating the majority, and accounted for 76.5%, under the casual type. This means that the proportion of workers in secondary sector is higher than those of the primary sector. Even in education years, it displays 9.3 years for workers in permanent employment, that is, 4.2 years higher than 5.1 years for casual

types. It turned out to be a higher record than primary sectors. When it comes to years of experience, it is a characteristic for which the average years of casual workers is higher with 0.4 years, unlike other sectors. The percentage share of those who are married among permanent workers is 5.4% higher than the sample of casual types.

Plus, only the upper class such as Brahmin and the Forward group have a high percentage of permanent workers, and the permanent workers in the SC & ST group are only 24.9%, but it rises to 39.8% in those of casual types. In the view of religion, unlike the primary sector, the percentage of Hindus with permanent status is 85.9%, which means it is higher than those under casual types. On a regional basis, 66.1% of urban workers belong to permanent types, while 69.4% of rural residents are casual workers. In addition, it shows that the difference between the share of permanent and casual types for rural areas is smaller than that in the primary sector except the western region that is showing the opposite effect than for the primary sector.

Finally, the differences in wages between permanent and casual employment are displayed at 0.87 for the tertiary sector cases, which is the largest in the sectors. In the case of gender, it indicates that male accounts for about 80%, and there is no significant difference between permanent workers compared to those in casual types. Workers in tertiary sector are higher than those in other sectors regarding education years, but the disparity is smaller than in the secondary sector. The years of experience are similar to the secondary sector, but the years of experience for permanent workers with 23.3 years are higher than those of casual type with 21.2 years. The permanent type is similar to other sectors in the case of spouse status, but the casual workers are characterized by a lower level, about 10% lower, than those of different sectors.

In Caste, for Brahmin and Forward Caste, the gap between permanent and contract workers has been narrowed slightly, but SC & ST turned out to be at the same level among work types. There are some differences in figures, but the overall trend has also turned out to be similar to the secondary sector. The difference between the percentage of permanent and casual workers is slight in terms of religion.

The share of permanent workers in urban areas is 63.7%, while that of casual type indicate 53.8%. According to India's local standards, permanent workers are higher in the northern, northeastern and western regions. Simultaneously, the share of casual type is higher in the southern, central and eastern regions. In subsequent analysis, the statistical information mentioned above will help understand the results clearly.

Table 9. Descriptive statistics

Variables	Total	Primary Sector		Secondary Sector		Tertiary Sector	
		Permanent	Casual	Permanent	Casual	Permanent	Casual
Hourly wage	2.59	2.67	2.10	3.32	2.67	3.48	2.61
Gender (%)							
Male	49.8	75.7	54.5	90.01	76.5	77.9	81.3
Female	50.2	24.3	45.5	9.9	23.5	22.1	18.7
Education (years)	6.6	5.4	3.2	9.3	5.1	10.9	7.5
Experience (years)	21.2	28.8	27.0	23.8	24.2	23.3	21.2
Square value of experience	655.5	965.5	897.5	709.0	747.4	680.9	599.8
Marital status (%)							
Married without absent	66.1	80.6	78.3	79.3	73.9	79.0	67.9
Others	33.9	19.4	21.7	20.7	26.1	21.0	32.1
Caste system (%)							
Brahmin	5.5	2.5	0.7	9.3	2.3	10.9	5.9
Forward (Except Brahmin)	20.4	12.2	9.4	25.0	13.2	27.4	18.2
SC & ST	28.5	49.0	47.7	24.9	39.8	26.3	27.5
OBC	37.1	31.0	38.0	35.5	38.3	29.6	36.8
Religion (%)							
Hinduism	82.5	85.8	91.5	85.9	81.5	83.4	79.6
Islam	12.6	4.8	6.1	8.3	14.1	9.0	15.3
Christianity	2.1	4.8	0.8	3.0	2.4	3.8	3.1
Sikhism	2.1	2.9	0.6	2.2	1.3	2.9	1.3
Regional structure (%)							
Urban	36.0	24.3	24.3	66.1	30.6	63.7	53.8
Rural	64.0	75.7	75.7	33.9	69.4	36.3	46.2
Regional location (%)							
North	23.1	23.2	7.8	26.1	23.6	31.1	20.1
Northeastern	4.7	7.7	1.0	4.7	3.6	9.3	3.8
Central	20.1	10.8	24.4	15.2	25.4	13.8	17.3
Eastern	16.2	25.2	13.5	18.0	16.9	13.8	15.6
Western	13.4	8.2	19.5	17.5	8.0	12.8	12.3
Southern	22.5	24.9	34.0	18.4	22.5	19.2	30.9
Employment types (%)							
Permanent	19.4						
Casual	80.6						
Industrial sectors (%)							
Primary sector	34.0						
Secondary sector	31.6						
Tertiary sector	30.5						
Numbers of sample	254,667	650	31,586	3,966	26,002	13,559	15,373

Data: India Human Development Survey (IHDS-I & II)

4.4. Methodology

In this chapter, proper econometric models are suggested for analysing wages based on employment types in industrial sectors, establishing income structures to find inequality along with the sector classifications. As mentioned earlier, the purpose of this study is to examine the extent of disparities between permanent and casual workers according to the industrial sector in India using panel data to look at various aspects of discrimination. First, this study finds the determinants of workers' hourly wage using regression based on the Mincer earnings function according to types and sectors. Second, we check factors associated with being one of the permanent workers in each sector. This will be presented through a binary regression both Probit and Logit model to check which factors influence the employment type. Third, the gap will be compared by types according to the sector and will then be decomposed into the difference and the discrimination parts using Blinder–Oaxaca decomposition, which helps determine whether there is discrimination based on the sectors. Finally, it looks with Juhn-Murphy-Pierce (JMP) decomposition depending on the income distribution of workers in accordance with the classifications. The analysis results in the next chapter will be examined through these methodologies, taking a comprehensive look into differences in wages by classification.

4.4.1. Estimates of Wage Determinants

First, the study needs the method to analyse the income structure according to each category. The wage function could show that individual characteristics impact each worker's wages depending on the types of employment with sectors, and many researchers have utilised the Mincer earnings function to analyse determinants of the wages. Chiswick (2003) mentioned that the theory of human capital emphasises the effects of education and experience on wages, as mentioned earlier in reference, and extended the earnings function to include these factors. Mincer (1974) insisted in succession that each characteristic of human resources, such as years of education and experience, could affect the individual`s income like the below equation. Besides, the experience's squared value is used as an explanatory variable in the equation as well. It is expected to have an inverted U shape that the effect either appears to be “0 or more” or “0 or less”. For example, young and inexperienced workers are expected to be recorded at the point of relatively low wages. Therefore, the wage will continually rise

due to amassment of experience over time since the accumulation of human capital by education and experience means that higher compensation can be expected for them, as suggested from empirical analysis of the human capital theory mentioned previously. Furthermore, it will show that the wages will slowly decline as workers reaches the retirement after middle age.

$$\ln W = \alpha + \beta_1 School + \beta_2 Exp + \beta_3 Exp^2 + \epsilon$$

lnW: Natural log value of an hourly wage, $School$: Years of education
Exp: Years of work, Exp^2: The squared value of years of service, ϵ: Error value

Mincer (1974) also stated that the wage gap by gender has occurred because women have accumulated less human capital than men. It implies that individual growth based on education and experience positively impacts each worker's wages. Lemieux (2003) argued that broadened data and estimation techniques have been expanded sustainably by labour economists after the publication of the basic equation. Therefore, we also break down wage by adding appropriate variables for the dependent variable in the equation and can prove whether the previous result of the equation could apply to the analysis results. Additional variables as stated above are added to extend the equation for this study's purpose, which means attribute variables for the research are used like the following equation.

$$lnW_{it} = \beta_{it} X_{it} + \epsilon_{it}$$

lnW: Natural log value of an hourly wage
β: Coefficient value, X: Explanatory variables
ϵ: Error value, i: Individual, t: Time

The first step in this process is to utilize Ordinary Least squares (OLS) and Random effect models (REM) to estimate the parameter β value for each explanatory variable based on these equations. OLS, an estimation method widely used in econometrics, is a method of calculating the value of β that minimizes the squared value of residuals. Especially, tests show the existence of heteroskedasticity in the regression through Breusch-Pagan and White test, showing rejection of the null hypothesis.

Therefore, OLS proceeds to consider heteroskedasticity with White robust standard error.

In addition, the panel model is made up of a fixed effect and random effect model, and we would like to analyze using the random effect in this study. The fixed-effects model is assumed to be fixed in terms of constant terms being different for each of these panels, which means that β is the same, but the constant term is different by the panel. On the other hand, the random effect assumes that the error term is a random variable. Breusch-Pagan test shows that the resulting p-value was smaller than 0.01, meaning the null hypothesis was rejected at the 1% level, indicating that panel analysis's random effect is more suitable than OLS. However, we try to find and compare both results. It can also be assumed that the sample of IHDS data is randomly selected from the population following probability distribution by error term. The problem is that the Hausman test shows that the fixed effects model is more appropriate than others, but it makes multicollinearity of regional variables in the analysis. Therefore, this part analyzes the determinants of wages using pooled OLS and random effects regression. Finally, panel models help identify the cohort effect in addition to the age effect of time series analysis. In addition, it enables to control for unobserved personal characteristics from the analysis of the wage effects to reduce the estimation bias in terms of the endogeneity.

For reference, it can be interpreted as the effect of (100 x β) % by change of 1 unit in the base of $\beta = \sigma \cdot \ln W / \sigma \cdot x$ when analyzing the value of the result since the value of the natural logarithm was given to the dependent variable for the hourly wage. Even if the explanatory variable is a dummy variable consisting of 0 or 1, it can be defined as higher at (100 x β) % if it belongs to the variable group.

The p-value of the test statistic related to the t-value could be checked to find the coefficient of determination significance of the explanatory variables, displayed as * in the analysis results. Finally, the R-Squared value is displayed in the result table, showing the goodness of fit of the model as the coefficient of determination. It is the ratio of the fluctuation value explained in total variance and can be expressed as follows.

$$R^2 = \frac{\text{SSR (Sum of squared regression)}}{\text{SST (Sum of squared total)}} = 1 - \frac{\text{SSE (Sum of squared error)}}{\text{SST (Sum of squared total)}}$$

If the analysis results using this equation are different according to the wage structure of each classification, which implies that each explanatory variable may have different effects depending on the affiliation of workers and the result shows the effect of these variables. Detailed descriptions of the variables are explained in the previous chapter for reference.

4.4.2. Estimates of Determinants of Employment Types

Researches regarding the determinants of permanent workers help find relationships between workers and employment types. The method will identify which factors are positively associated with the likelihood of being a permanent worker in each sector. This paper utilized both the Probit and Logit model that are useful methods of estimation for a binary response variable after assuming a standard normal or logistic distribution to find the possibility that each explanatory variable affects the dependent variable i.e., whether an individual belongs to the permanent type.

This part applies both the Probit and Logit model to this study using the equation shown below. Y_{it} is a binary variable consisting of 1 and 0, which indicates that "1" means that workers belong to the permanent positions, and "0" is not participating in the status. When the dependent variable is a binary variable consisting of 1 and 0 estimation via OLS is against the normality condition of the error term, causing heteroscedasticity, which is why studies of a binary variable generally utilize other models as below. Y_{it} would assume the following linear regression model and the subscript "i" means an individual and "t" shows the time of years. F means the cumulative distribution function of employment types with standard normal distribution in the Probit model, but logistic distribution in the Logit model. X_{it} is a vector of explanatory variables for the individual.

$$Y_{it} = F\ (\alpha_{it} + X_{it}\beta_{it} + \epsilon_{it})$$

It shows the probability of Y_{it} = 1, which means workers who belong to the permanent position is as follows. This is a probability distribution function that is centred at zero.

$$P_p\ (Y_{it} = 1) = P_p\ (Y_{it}^* > 0)$$
$$= P_p\ (\in_{it} > \ -\alpha - \beta X_{it}) = F(\alpha\ +\ \beta X_{it})$$

The effects on the binary variables are estimated using the maximum likelihood method. Probit and Logit models are analyzed through the random effect model in panel analysis as the error term u_i does not disappear in the fixed effects model, which makes the fixed effects considered inappropriate for regression over a binary variable.

Furthermore, the marginal effect could be calculated to find the impact on participation probability when each explanatory variable change by 1 unit based on the estimated coefficient obtained for the whole sample. The processes allow us to look intuitionally at factors of involved variables that determine the type of participants' decisions. In other words, these show whether the explanatory variables influence each individual's participation in the working environment as a permanent worker and show the characteristics of the employees by industrial sectors.

4.4.3. Estimates of the Wage Disparity

The third step is to decompose the wage gap from sectors. These can be disassembled into factors that can be divided into an explained part from variables related to individual attributes and another unexplainable part classified into discrimination from classifications. The results deduce the scale of the wage gap for each industrial sector. It is conducted based on the difference of coefficient of variables extended from Mincer's earnings equation using Blinder-Oaxaca decomposition. The decomposition is an empirical method to find the disparity in the means of a dependent variable between two groups by dividing the gap into both differences in the average value of the independent variable within the group and group differences from the effects of the independent variable.

Using this methodology, Blinder (1973) analyzed wage discrimination by race and gender. Oaxaca (1973) explained the wage gap by gender through Blinder-Oaxaca decomposition which has been widely used to examine discrimination in the labour market. It decomposes the average difference in wages between two parts into differences in qualifications (differences of the explanatory variables from a model) and differences in the model’s structure (differences that are inexplicable). The unexplained part could be considered as composed of specific labour market discrimination (Oaxaca & Ransom, 1999). Therefore, the model can also be extended as below to decompose the wage gap between groups of permanent and casual categories based on these theories.

$$ln\overline{W}_P = \bar{X}_P\hat{\beta}_P$$
$$ln\overline{W}_C = \bar{X}_C\hat{\beta}_C$$

$ln\overline{W_P}$, $ln\overline{W_C}$: Natural logarithm of the wage of workers in permanent and casual types
X: Vector mean value of each type
β: Vector value of the regression coefficient

Where W_P and W_C imply the wages of individuals who are in permanent worker and the casual worker categories, respectively. The difference between the average wage of permanent and casual categories proceeds with such an econometric model.

$$ln\overline{W}_P - ln\overline{W}_C = \bar{X}_P\hat{\beta}_P - \bar{X}_C\hat{\beta}_C$$
$$= (\bar{X}_P\hat{\beta}_P - \bar{X}_C\hat{\beta}_C) + (\bar{X}_c\hat{\beta}_P - \bar{X}_C\hat{\beta}_C)$$
$$= \hat{\beta}_P(\bar{X}_P - \bar{X}_C) + \bar{X}_C(\hat{\beta}_P - \hat{\beta}_C)$$

$ln\overline{W}_P - \overline{W}_C$: Natural logarithm of the wage of workers in permanent and casual types
$\bar{X}$: Explanatory variable to determine the category
$\hat{\beta}$: Coefficient value

It could be replenished such as $(\bar{X}_c\hat{\beta}_p - \bar{X}_c\hat{\beta}_C)$ to the formula, and then classify them into $\widehat{\beta_P}$ and $\bar{X}_C$ to see the result of the decomposition. $\hat{\beta}_P(\bar{X}_P - \bar{X}_C)$ means the difference in wage differentials from differences in variables, including factors of human resources. However, $\overline{X_c}(\widehat{\beta_p} - \widehat{\beta_c})$ is the wage difference caused by the difference from the employment type, even they have the same characteristic, which means that the difference in wage coefficients occurs with explanatory variables fixed to the category of permanent worker. In addition, the wage disparities by employment types according to the industrial sectors are also divided into explained part and discrimination from employment types through the decomposition method similar to decomposing the difference like wage premium between permanent and casual workers. The results help to understand which variables have had effects on the wage disparity across the board.

4.4.4. Estimates of the Disparity according to Income Quantiles

The final phase is regarding wage inequality in terms of the income quantile, which means that differences and discrimination factors according to each sector can be examined in terms of income levels. This shows more effects of inequality between rich and poor across income quantiles. We have utilised Juhn-Murphy-Pierce (JMP) wage decomposition, an extended form of Blinder-Oaxaca decomposition, to verify the wage gap. Juhn et al. (1993) approached to find wage disparity in the base of income quantile for males from 1963 to 1989 like quantile regression. Juhn-Murphy-Pierce (JMP) wage decomposition is a helpful method for comparative analysis of wages across income quantiles. Based on Blinder-Oaxaca decomposition, the wage equation for the j-th worker in the k-th quantile is as follows.

$$lnW_{jk} = X_{jk}\beta_k + \alpha_k\theta_{jk}$$

lnW_{jk}: Average wage value of the natural logarithm
of the j-th worker in the income of group k
X_{jk}: The explanatory variables of the j-th worker in the income group k
β_k: Coefficient of X_{jk}
α_k: Standard error of the wage of k group
θ_{jk}: Standardized residual

The wage gap for the income quantile according to castes can be decomposed as follows. P subscript means permanent job, and C means casual category as before.

$$D_k = lnW_{Pk} - lnW_{Ck}$$
$$= (X_{Pk} - X_{Ck})\beta_k + \sigma_k(\theta_{Pk} - \sigma_{Ck})$$
$$= \triangle X_k\beta_k + \sigma_k \triangle \theta_k$$

$X_{Pk} - X_{Ck}$: Differences by the region of the determinants of the k group
$\theta_{Pk} - \sigma_{Ck}$: Difference in employment type of the standardized errors in the k group
$\triangle X_k\beta_k$: Wage difference arising from wage determinants of k group
$\sigma_k \triangle \theta_k$: Wage difference arising from wage inequality in the k group

When dividing the gap between the m and the next n quantiles, it is expressed as below.

$$D_n - D_m = \triangle X_n\beta_n + \sigma_n \triangle \theta_n - \triangle X_m\beta_m - \sigma_m \triangle \theta_m$$
$$= (\triangle X_n - \triangle X_m)\beta_i + \triangle X_m(\beta_n - \beta_m) + (\triangle \theta_n - \triangle \theta_m)\sigma_n + \triangle \theta_m(\sigma_n - \sigma_m)$$

$(\triangle X_n - \triangle X_m)\beta_i$ = Effect of wage determining factors

$\triangle X_m(\beta_n - \beta_m)$ = Effect of observed price

$(\triangle \theta_n - \triangle \theta_m)\sigma_n$ = Ranking effect

$\triangle \theta_m(\sigma_n - \sigma_m)$ = Dispersion effect

Through the methodology of Juhn-Murphy-Pierce (JMP), it could be disassembled with four effects as follows. First, the wage decision factors' effect can be defined as the difference in wages caused by the difference of the wage-determining factors. Second, the observed price effect means that wage changes because wage determinants of permanent workers affect wage disparities by employment types between m group and n group. Third, the ranking effect indicates the shock corresponding to the change in the type of casual worker in the distribution of the error term of the permanent worker's wage. It implies that the change in the wage determinant factor of a permanent worker affects the wage difference. Finally, the dispersion effect implies that wage differential occurs in response to changes in wage quantiles. It is a value obtained by measuring the shock corresponding to the shift in the type of casual workers in distribution of the error term of the permanent worker's wage.

The effects of wage determinants and observed price effects on wage disparities can be explained by changes in each type of employment characteristic. In contrast, the ranking effect and the diversification effect occur depending on the type. As a result, it is possible to understand how the wage disparity depends on income distribution to find the degree of polarization. In this way, wage inequality, including discrimination factors according to employment types in each industry, can be reviewed comprehensively, and implications from the results could be useful to alleviate these wage disparities. The next chapter presents the result of the analysis done, using the above methodologies, through Stata statistical software.

CHAPTER 5

ANALYSIS RESULTS

This chapter discusses results of the quantitative analysis utilizing the methodologies described in the previous chapter. The results correspond to the main process that illustrates the main sections of this paper. It is roughly divided into three categories: determinants of wages, factors regarding employment decisions for employment types, and the analysis of wage gap by categories.

5.1. Estimations of Determinants of Wage

5.1.1. Estimates of Determinants of Wage

Estimating wage determinants is necessary to analyze income structure according to classifications to examine effects according to the individual's affiliation and characteristics. Before disassembling the wage gap between permanent and casual workers, the challenge that should be preceded is to estimate the determinants to understand each worker's characteristics since employment types are uncertain on how they affect income distribution. It shows the effects of explanatory variables on the wages of workers. As presented in the previous researches, the model for determining wages utilized variables such as gender, age, education and experience, marriage status, establishments, metropolitan area, length of service, whether to join a union and company size to do regression analysis using classification such as industrial sectors and permanent employees. Therefore, this study also tried to analyze as follows by utilizing some of the main variables that have been used in previous studies to reflect the characteristics in India. As mentioned above, it shows results from various aspects by using two methodologies viz. Pooled OLS with robust standard error and random effects model in the panel analysis. If the coefficient value is (+), that factor has positive effect of increasing the sum of wages, while the value of (-) means reducing the amount. Changes in these estimation factors show the impact on wages according to sectors and employment types. Based on these premises, the results will be analyzed according to classifications.

First, the analysis results for the whole 94,497 workers by using the Pooled OLS are shown in table 10. The effect of Male is positive about 27.4% on the wages, and

years of education and experience increase possibilities based on human resource theory previously, but the effect of matrimony is negative at -4.5%. Depending on each worker's caste, the Forward group is far better than the subgroup in terms of the wages. In the case of religion, Muslims are relatively neglected, but Christians and Sikhs are positive factors for the wages, related to India's social structure. The effect is significantly positive at 29.6% when living in the urban area. It is inferred that northeast, north, and south are favourable regions for workers in terms of their wages.

The variables show different effects for comparison across industrial sectors. In the case of gender, the male's wage raises in the secondary sector, and it is higher compared to other sectors. On the other hand, variables regarding years of education and years of experience indicate that more positive wages belong to the tertiary sector. In addition, marriage status turned out to be harmful in the order of primary and secondary sectors but only made a slight impact on the wages. It did not appear to be significantly different by classes in the primary sector when it comes to caste variables. It is typically positive for the wages of the Forward class in the secondary sector. The secondary and tertiary industries have a minor impact on the wages for Muslims, but have a positive impact on wages for both Christians and Sikhs. From the regional view, urban residence appears as a positive factor for wages in the tertiary sector and so are the northeast and north areas. It turned out that the scale of influence by the region is significant in case of the primary sector.

Table 11 shows the random-effects model results, as mentioned earlier for wage determinants of workers by industrial sectors' structures. First, effects on workers' wages vary for each variable for the total samples of 94,497 workers. In terms of gender, it shows a significant value of 26.4% if workers' gender is male. Regarding the years of education and experience, the values respectively increase by 9.1% and 3.7% for each rise of one year. The square value of experience shows a negative number as expected, but it is almost zero. When the worker is married, it was found that it had a value of -5.4%, which harmed the wages. In the case of caste, forward showed 36.1%, while workers who belong into SC & ST, considered the subgroup, showed 30.9% and those of OBC showed 29.7%. Christians accounted for 39.8% and the Sikhs for 28.0% regarding religion, while Muslims had 18.1%, which is relatively small. Besides, it significantly indicates 29.0% when workers are living in urban areas. By region, it displays that each worker's wage is positively affected in the order of northeast, north, and south areas.

Second, analyzes of the wage determinants of workers by industrial sector are as follows. In the case of the secondary sector, males are significantly representing at 37.9%, which indicates a high impact, while the primary and tertiary industries are similar levels nearly 21%. For education years, the tertiary sector shows 10.8%, higher than the 6% for the primary and secondary sectors. On the other hand, in the case of the number of years of experience, unlike the number of years of education, the secondary and tertiary industries have a relatively low impact of 1.8% in the 3% range. In comparison, it expresses 1.8% in the primary sector. The variable on the presence of spouse, that helps examine the family structure, has a negative impact of 7.1% on wages in the primary sector, while the wages in the secondary sector are slightly reduced the impact in the tertiary sector is not significant. In the case of caste, each variable has more significant effects in the order of primary, secondary, and tertiary sectors. Even in the case of religion, it has a significant influence on the primary sector. In the case of Muslims, the wage of workers in secondary and tertiary industries are less negatively affected.

According to region classification, the effect on workers' wages in the secondary and tertiary industries is nearly 14% for urban area. In comparison, it has an enormous impact of 25.0% on wages of urban workers belonging to the tertiary sector. From the regional effects, the influences on workers' wage in the primary sector are significant, making these main effects on the northeastern and northern areas of residence. On the other hand, it indicates that the region's influence in the case of secondary industries is relatively tiny compared to other industrial sectors. Plus, it suggests having a positive effect on wages if workers live in the northeast, north and west regions in the tertiary sector, showing differences by region areas.

Finally, the results indicates that the effects of variables on wages by industrial sectors are generally similar but partially differ depending on the industrial sector's characteristics. It is also conceivable that the numerical differences are different when comparing the Pooled OLS and random-effects model results. However, the overall direction is similar in terms of effects on the wages.

Table 10. Estimation of wage determinants in sectors by Pooled OLS

Variables	Total	Primary sector	Secondary sector	Tertiary sector
Gender	0.274***	0.241***	0.386***	0.211***
	(0.006)	(0.008)	(0.010)	(0.012)
Education	0.083***	0.044***	0.058***	0.106***
	(0.001)	(0.001)	(0.001)	(0.001)
Experience	0.035***	0.016***	0.029***	0.036***
	(0.001)	(0.001)	(0.001)	(0.002)
Square value of experience	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Marital status	-0.045***	-0.048***	-0.026**	0.005
	(0.007)	(0.010)	(0.011)	(0.013)
Forward (Except Brahmin)	0.298***	0.427***	0.351***	0.213***
	(0.011)	(0.024)	(0.018)	(0.016)
SC & ST	0.225***	0.413***	0.266***	0.193***
	(0.010)	(0.024)	(0.017)	(0.016)
OBC	0.214***	0.421***	0.246***	0.129***
	(0.010)	(0.023)	(0.016)	(0.015)
Islam	0.127***	0.337***	0.046***	0.067***
	(0.009)	(0.017)	(0.013)	(0.016)
Christianity	0.363***	0.575***	0.288***	0.284***
	(0.017)	(0.040)	(0.025)	(0.028)
Sikhism	0.236***	0.508***	0.225***	0.043
	(0.021)	(0.034)	(0.027)	(0.035)
Urban	0.296***	0.155***	0.141***	0.245***
	(0.006)	(0.017)	(0.009)	(0.010)
Northern	0.422***	0.601***	0.298***	0.387***
	(0.007)	(0.015)	(0.011)	(0.015)
Northeastern	0.602***	0.744***	0.441***	0.614***
	(0.013)	(0.031)	(0.021)	(0.022)
Eastern	0.135***	0.197***	0.078***	0.121***
	(0.008)	(0.011)	(0.011)	(0.017)
Western	0.113***	0.222***	0.115***	0.250***
	(0.008)	(0.011)	(0.016)	(0.017)
Southern	0.226***	0.382***	0.222***	0.215***
	(0.007)	(0.010)	(0.012)	(0.015)
Constant	0.812***	0.850***	1.173***	0.662***
	(0.016)	(0.030)	(0.026)	(0.029)
R-squared	0.3647	0.2073	0.2550	0.3484
Numbers of sample	94,497	32,095	29,809	28,730

Data: India Human Development Survey (IHDS-I & II)

Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

Table 11. Estimation of wage determinants in sectors by random-effects model

Variables	Total	Primary sector	Secondary sector	Tertiary sector
Gender	0.264***	0.216***	0.379***	0.211***
	(0.006)	(0.009)	(0.010)	(0.012)
Education	0.091***	0.055***	0.059***	0.108***
	(0.001)	(0.001)	(0.001)	(0.001)
Experience	0.037***	0.018***	0.031***	0.037***
	(0.001)	(0.001)	(0.001)	(0.002)
Square value of experience	-0.000***	-0.000**	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Marital status	-0.054***	-0.071***	-0.025**	-0.000
	(0.007)	(0.011)	(0.011)	(0.013)
Forward (Except Brahmin)	0.361***	0.435***	0.387***	0.255***
	(0.010)	(0.023)	(0.016)	(0.015)
SC & ST	0.309***	0.443***	0.311***	0.231***
	(0.010)	(0.022)	(0.016)	(0.016)
OBC	0.297***	0.449***	0.289***	0.175***
	(0.009)	(0.021)	(0.015)	(0.015)
Islam	0.181***	0.375***	0.068***	0.093***
	(0.010)	(0.020)	(0.014)	(0.017)
Christianity	0.398***	0.590***	0.288***	0.312***
	(0.018)	(0.043)	(0.026)	(0.027)
Sikhism	0.280***	0.520***	0.237***	0.052
	(0.022)	(0.048)	(0.033)	(0.034)
Urban	0.290***	0.143***	0.140***	0.250***
	(0.006)	(0.017)	(0.009)	(0.010)
Northern	0.419***	0.608***	0.295***	0.384***
	(0.009)	(0.017)	(0.012)	(0.016)
Northeastern	0.574***	0.727***	0.427***	0.608***
	(0.014)	(0.037)	(0.022)	(0.023)
Eastern	0.127***	0.194***	0.071***	0.115***
	(0.009)	(0.014)	(0.013)	(0.018)
Western	0.105***	0.224***	0.108***	0.241***
	(0.009)	(0.013)	(0.016)	(0.019)
Southern	0.209***	0.373***	0.220***	0.212***
	(0.008)	(0.011)	(0.012)	(0.016)
Constant	0.625***	0.707***	1.102***	0.590***
	(0.016)	(0.030)	(0.025)	(0.029)
R-squared (Within)	0.3613	0.3366	0.3243	0.3396
Numbers of sample	94,497	32,095	29,809	28,730

Data: India Human Development Survey (IHDS-I & II)

Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

5.1.2. Estimates of Determinants of Wage in Industrial Sectors

This chapter examines the effects of wage determinants according to permanent and casual positions by industrial sectors. First, table 12 shows the analysis results through Pooled OLS with robust standard error, as mentioned in the previous chapter. In the case of casual workers in the primary sector, it is a significantly 24.8%, showing the positive effects of years of education and experience on wages. A variable regarding getting married seems to have a negative effect significantly on the wages of casual workers.

On the other hand, it shows that caste and religion have no significant effect on wages of workers in permanent employment but significantly affects the wages of casual workers, but the difference in rank is slight. Plus, it indicates that the positive influence on wages of Christians and Sikhs is more significant than that of Muslims. In the region's view, workers' wages in the urban are significantly positive for permanent employees. Permanent employees have a considerable positive impact in the northeast, northern, and western areas. At the same time, the wages of casual employees are positively affected by the region in the order of northeast, northern, and southern regions, but it turned out that the degree is less than permanent employees. The study shows significant results, but there are some shortages of data samples of permanent workers in the primary sector compared to other sectors.

In the case of the secondary sector, it has an advantage for the male regardless of the employment types. A variable of years of education has an enormous positive impact on permanent workers. For both types of workers the effect of years of experience is smaller than the years of education. The result indicates that the influence of the caste system and religion is considerable for casual workers. When it comes to religion, Christians makes a significant effect of 33.9% for permanent workers. By region, wages have a significant impact of 23.6% for permanent workers who live in the urban area and the positive effects of wages in the northeast, north, and east. However, it shows a positive effect at 5.6% for casual workers who reside in urban areas, and wage is positive in the northeastern, northern, and southern regions.

Finally, the tertiary sector shows that the wage increase is even more significant for male casual workers. The effects of years of education indicate a more substantial effect for permanent workers, but the effect of number of years of experience is minor. Plus, castes have a significant impact on the overall wages of casual workers. In contrast, Christians who belong permanent workers have had a significant positive effect on

wages. However, the figure for Muslims displayed negative at -6.4% for casual workers and showed an important result of 30% for Christians. However, Muslims and Sikhs also have a positive impact of 15% in the case of religion. The effect of living in an urban area appeared to be significant with a more significant number of permanent workers in the region. It was significantly recognized in the order of northeast, north, and west. However, it is substantial in the northeastern, northern, and eastern regions for casual workers who do not show significant effect in the rest of the regions.

In table 13 from the random-effects model results, gender has not shown significant effects on the wage of permanent workers of samples of the primary sector. However, it offers a mean value of 22.3% for casual workers. In the case of the number of years of education and experience, permanent workers show a significant effect, showing a high value of more than double. On the other hand, it displays a negative value of -6.7% only in the case of casual workers who are married. Looking at the impact of caste, the figure for casual positions is significant, unlike permanent workers, but it shows similar effect of almost 45% regardless of the caste of workers.

On the other hand, the upper class, such as forward, indicates a significant value of 24.0% in the case of permanent employees. In terms of effects of religion, it shows that workers who are Muslim have a significantly positive impact on wage, but showing insignificant impacts on those of the Christian and the Sikhs religion for casual workers, which indicates that caste and religion have more significant effects on the wages of casual workers than those of permanent positions.

It has been shown that workers who reside in the urban area have a significant influence regardless of employment types, but permanent employees' wage is high at about 30%. By region, in the case of permanent employees, the impact of area is relatively more enormous for northeast, north, and west. However, it is characterized by the relatively small effects on workers' wages in the northeast and western regions. The effect on permanent and casual wage is significantly higher for the secondary sector, showing to reach a level of approximately 39% for male workers. As for the number of years of education, the figure for permanent employees almost reaches the 10% level, which is more than twice as high as those of casual position, but it shows that those of the casual workers is 2.5% that is higher than that of permanent employees regarding a variable of years of experience, which means that the influence of education is more considerable than experience for permanent employees. A variable that is related to the case of having a spouse after marriage also shows a minus value of -2% which is a

small number, for only casual workers like the case of the primary sector. The influence of caste on the casual workers is as enormous as those of the primary sector, and the influence of the Christian and the Sikhs appears high for casual workers. In addition, being a Christian is a characteristic that has a positive impact on wages of permanent workers. Living in urban areas, has a similar effect as on the primary sector. In regional areas, the impact of the northeastern and northern regions appeared significant regardless of employment type. However, the magnitude of the absolute value is smaller than that of the primary sector.

In the case of the tertiary sector, casual workers show 28.0% if workers are males. In comparison, the level remained at 20.7% for permanent employees, which suggests having enormous impact of gender on casual workers. In terms of years of education and years of experience, it is similar to the secondary sector. However, it indicates that the influence of years of education is relatively considerable for casual workers. Marriage has no significant effect on wages regardless of employment types. Caste has a significant impact on wages for casual workers like other industrial sectors, and Forward, considered the upper class, is displayed at 32.5%, proving to be high.

In view of religion, Muslims is characterized by a negative effect of -4.9% on wages for permanent jobs, and Christians show a high value of over 30% regardless of employment types. Unlike other industrial sectors, casual employees also indicate a high value of 17.9% if the place of residence is urban. Finally, it suggests high value for the northeastern and the northern areas regardless of the employment type in respect of regional notions. The eastern region is characterized by the part that indicates differences in the influence between the secondary sector's permanent and casual position. As done earlier, comparing the analysis results of Pooled OLS and panel data shows that the numerical values are different, but the overall direction is similar.

Table 12. Estimation of wage determinants with employment types by Pooled OLS

Variables	Primary sector		Secondary sector		Tertiary sector	
	Perm	Casual	Perm	Casual	Perm	Casual
Gender	0.018	0.248***	0.393***	0.390***	0.209***	0.281***
	(0.074)	(0.008)	(0.048)	(0.010)	(0.017)	(0.017)
Education	0.109***	0.039***	0.101***	0.037***	0.116***	0.058***
	(0.008)	(0.001)	(0.003)	(0.001)	(0.002)	(0.002)
Experience	0.044***	0.013***	0.012**	0.023***	0.017***	0.028***
	(0.012)	(0.001)	(0.005)	(0.001)	(0.003)	(0.002)
Square value of experience	-0.000*	-0.000***	0.000***	-0.000***	0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Marital status	-0.043	-0.045***	0.030	-0.020*	0.035**	-0.011
	(0.083)	(0.010)	(0.038)	(0.011)	(0.019)	(0.016)
Forward (Except Brahmin)	0.216	0.441***	0.141***	0.428***	0.112***	0.296***
	(0.143)	(0.024)	(0.038)	(0.019)	(0.020)	(0.023)
SC & ST	0.189	0.431***	0.105***	0.379***	0.129***	0.233***
	(0.128)	(0.024)	(0.040)	(0.018)	(0.022)	(0.023)
OBC	0.086	0.443***	0.022	0.365***	0.052**	0.221***
	(0.128)	(0.023)	(0.037)	(0.018)	(0.021)	(0.021)
Islam	0.266	0.348***	-0.054	0.116***	-0.064**	0.166***
	(0.166)	(0.017)	(0.047)	(0.014)	(0.026)	(0.020)
Christianity	-0.046	0.633***	0.339***	0.320***	0.318***	0.300***
	(0.175)	(0.039)	(0.085)	(0.024)	(0.036)	(0.041)
Sikhism	0.335***	0.522***	0.037	0.244***	-0.061	0.143**
	(0.112)	(0.035)	(0.083)	(0.024)	(0.041)	(0.056)
Urban	0.300***	0.102***	0.236***	0.056***	0.267***	0.175***
	(0.084)	(0.016)	(0.024)	(0.009)	(0.014)	(0.012)
Northern	0.593***	0.592***	0.202***	0.318***	0.415***	0.319***
	(0.121)	(0.015)	(0.038)	(0.010)	(0.022)	(0.019)
Northeastern	0.917***	0.666***	0.366***	0.438***	0.592***	0.487***
	(0.160)	(0.028)	(0.067)	(0.020)	(0.028)	(0.035)
Eastern	0.227**	0.190***	0.164***	0.044***	0.249***	0.049**
	(0.116)	(0.011)	(0.041)	(0.011)	(0.025)	(0.020)
Western	0.503***	0.224***	0.100***	0.101***	0.318***	0.255***
	(0.152)	(0.011)	(0.039)	(0.017)	(0.025)	(0.023)
Southern	0.385***	0.386***	0.119***	0.286***	0.263***	0.308***
	(0.117)	(0.009)	(0.042)	(0.012)	(0.024)	(0.018)
Constant	0.538**	0.880***	1.138***	1.267***	0.936***	0.984***
	(0.238)	(0.030)	(0.079)	(0.027)	(0.043)	(0.039)
R-squared	0.4773	0.1953	0.3711	0.2028	0.3429	0.1863
Numbers	647	31,448	3,939	25,870	13,459	15,268

Data: India Human Development Survey (IHDS-I & II)

Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

Table 13. Estimation of wage determinants of employment types by random-effects model

Variables	Primary sector		Secondary sector		Tertiary sector	
	Perm	Casual	Perm	Casual	Perm	Casual
Gender	0.031	0.223***	0.396***	0.384***	0.207***	0.280***
	(0.078)	(0.009)	(0.041)	(0.010)	(0.017)	(0.016)
Education	0.109***	0.050***	0.101***	0.039***	0.118***	0.060***
	(0.008)	(0.001)	(0.003)	(0.001)	(0.002)	(0.002)
Experience	0.044***	0.016***	0.009*	0.025***	0.016***	0.028***
	(0.012)	(0.001)	(0.005)	(0.001)	(0.002)	(0.002)
Square value of experience	-0.000	-0.000	0.000***	-0.000***	0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Marital status	-0.052	-0.067***	0.016	-0.020*	0.023	-0.010
	(0.084)	(0.011)	(0.035)	(0.011)	(0.019)	(0.016)
Forward (Except Brahmin)	0.240*	0.444***	0.165***	0.453***	0.144***	0.325***
	(0.144)	(0.023)	(0.038)	(0.017)	(0.020)	(0.021)
SC & ST	0.219	0.455***	0.123***	0.410***	0.161***	0.260***
	(0.137)	(0.022)	(0.041)	(0.017)	(0.022)	(0.022)
OBC	0.132	0.465***	0.041	0.392***	0.089***	0.248***
	(0.137)	(0.021)	(0.037)	(0.016)	(0.021)	(0.020)
Islam	0.280*	0.383***	-0.042	0.132***	-0.049*	0.184***
	(0.157)	(0.020)	(0.044)	(0.014)	(0.025)	(0.020)
Christianity	-0.065	0.646***	0.367***	0.311***	0.333***	0.315***
	(0.155)	(0.045)	(0.072)	(0.027)	(0.036)	(0.037)
Sikhism	0.349*	0.528***	0.024	0.260***	-0.060	0.158***
	(0.183)	(0.050)	(0.081)	(0.035)	(0.040)	(0.054)
Urban	0.301***	0.091***	0.245***	0.056***	0.269***	0.179***
	(0.080)	(0.018)	(0.026)	(0.009)	(0.014)	(0.013)
Northern	0.610***	0.601***	0.223***	0.313***	0.413***	0.321***
	(0.114)	(0.017)	(0.038)	(0.012)	(0.023)	(0.020)
Northeastern	0.946***	0.655***	0.387***	0.423***	0.599***	0.483***
	(0.147)	(0.039)	(0.062)	(0.023)	(0.030)	(0.035)
Eastern	0.256**	0.189***	0.157***	0.041***	0.245***	0.045**
	(0.115)	(0.014)	(0.041)	(0.013)	(0.026)	(0.021)
Western	0.529***	0.226***	0.120***	0.092***	0.315***	0.254***
	(0.139)	(0.013)	(0.042)	(0.017)	(0.027)	(0.023)
Southern	0.405***	0.378***	0.144***	0.281***	0.261***	0.305***
	(0.111)	(0.011)	(0.041)	(0.012)	(0.024)	(0.019)
Constant	0.457**	0.741***	1.107***	1.200***	0.862***	0.926***
	(0.231)	(0.030)	(0.078)	(0.026)	(0.044)	(0.038)
R-squared (Within)	0.1824	0.3220	0.3881	0.2745	0.3643	0.3117
Numbers	647	31,448	3,939	25,870	13,459	15,268

Data: India Human Development Survey (IHDS-I & II)

Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

5.2. Estimations of Determinants of Employment Types

Table 14 to 17 represents the results of analyzing the determinants of permanent workers by industrial sectors using both Probit and Logit methods. A binomial variable, “whether a permanent worker” is used as dependent variable, and is estimated using individual attributes and environmental variables as in earlier empirical models. Suppose if the value of the coefficient is positive (+). In that case, it means that the variable's factor increases the probability of being in permanent positions. Conversely, a negative value (-) indicates decreases in the likelihood to become permanent workers.

The determinants of employment type from table 14 showing the results of Probit analysis are as follows. First, when it comes to total samples, it offers a negative value of -13.1% when the gender of workers is male, which is guessed by the results of a specific feature from the low labour force participation of females in India but seems to require more research. It shows that the probability of being permanent workers is high when the number of years of education and years of experience is increased, as generally expected. It means the period of education has a more significant effects on their income. Moreover, it exhibits a negative value of -11.9% when the worker has got married.

From cases of caste, Forward, which is considered as the upper group, presents a value of 11.6%. In contrast, in the subgroup cases, it displays negative values, which is analyzed as the discriminatory barrier of caste in Indian society. In the case of religion, Muslims, relatively neglected in India, shows a value of -17.6%, while the Sikhs had a high value of 50.4%. In particular, variables regarding caste and religion are interpreted as a result of traditional discrimination in Indian society. Besides, it shows the high impact with 92.4% for workers living in urban areas. In addition, wage earners who are residents in the northeast and northern regions present high probabilities. The southern region, however, expresses a negative value of -33.7%. When classified by industrial sectors, the probability to be one of the permanent employees when the gender of the worker is male is higher in the case of the primary and the secondary sector. However, it is rather negative for the tertiary sector, unlike other sectors. Also, the effects of the number of years of education have turned out to be more favourable for the workers in the secondary and tertiary industries than in the primary sector. However, the effect is opposite for the number of years of experience. Effects on probabilities are adverse for

workers who have been in primary and secondary sectors, and it has more significant impacts on those in the primary sector.

In terms of the effects of caste, it does not have a significant result for primary sector workers, while the caste of SC & ST has more negative effects than others. On the other hand, it indicates that they would instead serve for permanent positions in the tertiary sector. In the case of religion, effects of Muslim religion are about -50% for workers in the primary and secondary industries. The primary sector has a positive impact of 76.9% for workers of Christians, while it has a negative effect of -27% in the secondary sector. Furthermore, the results are not significant for both Muslims and Christians in the tertiary sector.

On the other hand, the probability of being a permanent employee is significantly higher for the Sikhs regardless of the industrial sector. When workers in the primary and secondary industries live in urban areas, there is a significantly higher probability for effects. However, it is relatively unrelated to urban dwelling for workers in the tertiary sector.

According to the habitation location, there is a high degree of association between the permanent position and northeast, north, and east regions. However, there was no significance in other regions for those of the primary sector. On the other hand, they are more likely to get a permanent position if secondary and tertiary industries workers live in the northeast and north except for the adverse effects of the eastern area in the tertiary sector. Workers who reside in the southern region negatively impact the probability of permanent employment in secondary and tertiary industries, but the effect is more negative for workers in the tertiary sector. Through these results, it is estimated that there is a higher relationship between employment types and favoured features in the industrial sectors' base.

Table 15 shows marginal effects in the base of Probit analysis. It can easily measure the results of these variables more clearly since it offers the impact on the probability of changing by one unit of variables. First, in the view of standard for all workers, the probability to be permanent workers decreased by 1.3% if the worker is male. Each additional year of education helps to increase the probability by 2.1%, and in the case of years of experience, it is increased by 0.7%, but, when married, it decreases by 1.2% the chances to get a permanent position. In terms of caste, it increases the likelihood by 1.1% in the Forward group but decreases for workers in the subclass, and in terms of religion, it is increased by 6.9% for the Sikhs, but declines by 1.4% for

Muslims. If workers live in urban area, the probability increase by 11.6%, and increased by 15.3% in the northeast, by 6.7% in the northern, but decreases by 2.7% in the southern area.

On the other hand, in the primary sector, since it is judged that there are only about 600 regular workers and shows no valid results, the additional analysis is omitted due to difficulties to find helpful meaning. In the case of gender, displayed at -13.8% for workers of the tertiary sector. Education years are also expected to be displayed at 7.3% per year, showing 2.4% for years of experience for the tertiary sector workers. However, in the secondary sector, education and training are about 1%, which means that individual abilities are relatively ignored in the sector.

In the case of the tertiary sector, it appeared to be 13.7% in the case of SC & ST, it appeared to be 10.8% for workers in Forward group, but in the case of the secondary sector, it shows that the influence of caste is small. In the case of religion, it decreased by -1.9% for Muslims and 1.2% for Christians, while it increased by 2.4% for Sikhs engaged in the secondary sector. On the other hand, in the case of the tertiary sector, the effect of a variable of the Sikhs means 16.5%, with a significant value. When living in urban areas, workers in the secondary sector accounted for 6.9%. Workers in the tertiary sector display 8.8%, which clarifies the influence of the area in which they live. In the case of the secondary sector, 4.2% has shown in the northeast and 4.1% in the west, while in the case of workers in the tertiary sector; 22.4% in the northeast and 13.9% in the north, but, -19.0% is displayed in the case of the southern region, and it seems that the characteristics are according to the area.

Plus, the analysis results from the Logit model shown in table 16 is as follows. It indicates 23.2% for the male, and the number of years of education is displayed at 41.2%. The number of years of experience was displayed at 12.8%, indicating a positive result, but a variable whether to marry was declared at -19.7%, indicating negative impacts. In the case of the caste results, Forward, which belongs to the upper group, is 20.4%, while the effect of both subgroups is negative at -10% level. According to the religious classification, it has shown a significant negative value at -29.7% in the case of Muslims, but it is significantly positive at 88.0% for the Sikhs.

On the other hand, 161.2% are significantly positive when living in urban areas, according to the region. It is positive at 153.9% in the northeast and 95.5% in the north. In comparison, it displayed at -60.5% and turned out to be a negative value in the southern region.

When categorized based on industry classification, the effect of male gender is positive in primary and secondary sectors, but it is displayed as -59.6% for workers in the tertiary sector. In terms of years of education, all positives are found in tertiary, secondary, and primary sectors. The years of experience shows an increase of about 10% for all sectors, while in the case of marriage, the secondary sector shows a decrease of -53.8%. In the case of caste, the result is not significant for workers in the primary sector. However, it has a negative value for workers in the secondary sector, and the degree of the negative effect for subgroups is even worse.

The tertiary sector, on the contrary, shows all positive values. Regarding religion, it indicates that the Sikhs are more likely to belong to all permanent workers, regardless of industrial sectors. On the contrary, Muslims have a negative impact when engaged in primary and secondary sectors. In the case of the region, the positive impact is enormous if workers live in urban in the order of primary, secondary, and tertiary sectors, and the numbers are high in the northeast and north in general. However, the impact of southern area is negative. On the other hand, variable about the western and eastern regions for the secondary sector has positive effects, but it turned out to have a negative impact in the case of tertiary sector workers on the east region except for workers engaged in primary or secondary sectors.

In table 17, it shows the marginal effects of Logit analysis as follows. First, it shows that considering all workers, the probability of becoming a permanent employee decreases by 1.1% when the gender is male. The effect of years of education increases by 1.9%, and the number of years of experience increases by 0.6% per year. It indicates that it decreased to -0.9% when married and decreased to -1.0% in the Forward group, or decreased to -0.5% in the subgroup from effects of caste. In the case of Muslims, it means a decrease of 1.2%, but a variable of Sikhs gave a positive result at 5.9%. Living in urban areas shows a positive result at 10%, and the northeastern area showed a value of 13.4%, the northern part showed a value of 5.7%, but the southern part showed a negative result -2.4% as well.

The results of classification by industrial sectors are as follows. When the gender is male, the effect is negative at -14.8% for workers in the tertiary sector, but for the number of years of education it is 7.8% and for years of experience it is 2.5%. Those are the characteristics showing positive results similar to other results. On the other hand, in the case of the secondary sector, the effect is small with positive values of 1.0% for males, 1.0% for each year of education, and 0.3% for years of experience.

In the case of caste, the positive impact is significant for the secondary sector workers but had a slightly negative effect on workers of the tertiary sector. It had a clear positive impact on the Sikhs of secondary and tertiary industries in terms of religion. By resident region, the effect of living in urban area is positive regardless of the industrial sectors, the effect is also positive when living in the northeast and north, and negative when living in the eastern region in the case of the tertiary sector. If workers live in the southern part of the country, it is displayed as a negative value.

A comparative analysis of Probit and Logit based on these results shows a similar tendency, although there are differences in the numerical values. In short, the permanent form of employment is relatively favoured, and individuals who have preferable abilities may get the job of permanent types more easily under the characteristics of each region. Besides, it shows different characteristics depending on the industrial sectors that workers are involved in. Based on these results, we examine the tendency of the hourly wage and compositional disparities between permanent that is preferred and casual types that is the majority of the labour market in India.

Table 14. Determinants of employment types by Probit model

Variables	Total	Primary sector	Secondary sector	Tertiary sector
Gender	-0.131***	0.310***	0.158***	-0.347***
	(0.021)	(0.074)	(0.046)	(0.028)
Education	0.233***	0.103***	0.175***	0.185***
	(0.004)	(0.011)	(0.007)	(0.005)
Experience	0.074***	0.086***	0.050***	0.060***
	(0.003)	(0.013)	(0.006)	(0.004)
Square value of experience	-0.001***	-0.001***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Marital status	-0.119***	-0.281***	-0.102**	0.038
	(0.024)	(0.087)	(0.044)	(0.029)
Forward (Except Brahmin)	0.116***	-0.064	-0.119**	0.273***
	(0.031)	(0.163)	(0.058)	(0.036)
SC & ST	-0.070**	-0.048	-0.503***	0.345***
	(0.031)	(0.151)	(0.061)	(0.037)
OBC	-0.054*	-0.072	-0.295***	0.180***
	(0.029)	(0.150)	(0.055)	(0.034)
Islam	-0.176***	-0.500***	-0.474***	-0.055
	(0.032)	(0.167)	(0.057)	(0.038)
Christianity	0.007	0.769***	-0.270***	-0.010
	(0.051)	(0.199)	(0.097)	(0.061)
Sikhism	0.504***	0.479**	0.316***	0.418***
	(0.062)	(0.223)	(0.117)	(0.078)
Urban	0.924***	1.090***	0.897***	0.223***
	(0.022)	(0.112)	(0.044)	(0.023)
Northern	0.545***	1.141***	0.354***	0.351***
	(0.029)	(0.135)	(0.050)	(0.036)
Northeastern	0.882***	1.633***	0.484***	0.572***
	(0.045)	(0.204)	(0.086)	(0.054)
Eastern	0.155***	0.878***	0.260***	-0.117***
	(0.031)	(0.117)	(0.054)	(0.040)
Western	0.003	-0.183	0.492***	-0.061
	(0.032)	(0.123)	(0.060)	(0.041)
Southern	-0.337***	0.127	-0.116**	-0.497***
	(0.028)	(0.098)	(0.051)	(0.037)
Constant	-4.593***	-5.648***	-4.036***	-3.031***
	(0.083)	(0.450)	(0.170)	(0.094)
Log likelihood	-31936.344	-2643.7592	-9053.8979	-16071.735
Numbers of sample	94,680	32,127	29,868	28,815

Data: India Human Development Survey (IHDS-I & II)
Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

Table 15. Determinants of employment types by Probit model (Margin effect)

Variables	Total	Primary sector	Secondary sector	Tertiary sector
Gender	-0.013***	0.000	0.008***	-0.138***
	(0.002)	(0.000)	(0.002)	(0.011)
Education	0.021***	0.000	0.010***	0.073***
	(0.001)	(0.000)	(0.001)	(0.002)
Experience	0.007***	0.000	0.003***	0.024***
	(0.000)	(0.000)	(0.000)	(0.002)
Square value of experience	-0.000***	-0.000	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Marital status	-0.012***	0.000	-0.006**	0.015
	(0.002)	(0.000)	(0.003)	(0.011)
Forward (Except Brahmin)	0.011***	0.000	-0.006**	0.108***
	(0.003)	(0.000)	(0.003)	(0.014)
SC & ST	-0.006**	0.000	-0.025***	0.137***
	(0.003)	(0.000)	(0.004)	(0.015)
OBC	-0.005*	0.000	-0.015***	0.071***
	(0.003)	(0.000)	(0.003)	(0.014)
Islam	-0.014***	0.000	-0.019***	-0.022
	(0.002)	(0.000)	(0.003)	(0.015)
Christianity	0.001	0.001	-0.012***	-0.004
	(0.005)	(0.001)	(0.003)	(0.024)
Sikhism	0.069***	0.000	0.024**	0.165***
	(0.012)	(0.001)	(0.012)	(0.030)
Urban	0.116***	0.003	0.069***	0.088***
	(0.004)	(0.002)	(0.006)	(0.009)
Northern	0.067***	0.003	0.024***	0.139***
	(0.005)	(0.002)	(0.004)	(0.014)
Northeastern	0.153***	0.016*	0.042***	0.224***
	(0.012)	(0.009)	(0.011)	(0.020)
Eastern	0.016***	0.001	0.017***	-0.046***
	(0.003)	(0.001)	(0.004)	(0.015)
Western	0.000	0.000	0.041***	-0.024
	(0.003)	(0.000)	(0.007)	(0.016)
Southern	-0.027***	0.000	-0.006**	-0.190***
	(0.002)	(0.000)	(0.003)	(0.013)
Numbers of sample	94,680	32,127	29,868	28,815

Data: India Human Development Survey (IHDS-I & II)
Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

Table 16. Determinants of employment types by Logit model

Variables	Total	Primary sector	Secondary sector	Tertiary sector
Gender	-0.232***	0.575***	0.313***	-0.596***
	(0.038)	(0.140)	(0.078)	(0.048)
Education	0.412***	0.197***	0.296***	0.316***
	(0.007)	(0.019)	(0.012)	(0.009)
Experience	0.128***	0.165***	0.079***	0.101***
	(0.006)	(0.024)	(0.010)	(0.007)
Square value of experience	-0.001***	-0.002***	-0.001***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Marital status	-0.197***	-0.538***	-0.165**	0.069
	(0.042)	(0.164)	(0.075)	(0.050)
Forward (Except Brahmin)	0.204***	-0.133	-0.193**	0.465***
	(0.054)	(0.302)	(0.097)	(0.061)
SC & ST	-0.109**	-0.091	-0.824***	0.591***
	(0.054)	(0.280)	(0.101)	(0.064)
OBC	-0.088*	-0.170	-0.481***	0.308***
	(0.051)	(0.278)	(0.092)	(0.059)
Islam	-0.297***	-0.917***	-0.798***	-0.093
	(0.056)	(0.312)	(0.097)	(0.064)
Christianity	0.014	1.403***	-0.434***	-0.011
	(0.089)	(0.360)	(0.161)	(0.103)
Sikhism	0.880***	0.892**	0.521***	0.710***
	(0.109)	(0.407)	(0.193)	(0.133)
Urban	1.612***	2.029***	1.505***	0.379***
	(0.039)	(0.192)	(0.072)	(0.039)
Northern	0.955***	2.147***	0.601***	0.599***
	(0.051)	(0.235)	(0.084)	(0.062)
Northeastern	1.539***	3.024***	0.824***	0.970***
	(0.078)	(0.356)	(0.143)	(0.093)
Eastern	0.271***	1.673***	0.446***	-0.201***
	(0.055)	(0.208)	(0.091)	(0.068)
Western	0.013	-0.339	0.807***	-0.102
	(0.056)	(0.236)	(0.099)	(0.070)
Southern	-0.605***	0.222	-0.231***	-0.847***
	(0.050)	(0.189)	(0.086)	(0.064)
Constant	-8.074***	-10.416***	-6.763***	-5.181***
	(0.148)	(0.741)	(0.277)	(0.168)
Log likelihood	-31899.99	-2639.7912	-9030.2361	-16066.189
Numbers of sample	94,680	32,127	29,868	28,815

Data: India Human Development Survey (IHDS-I & II)
Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

Table 17. Determinants of employment types by Logit model (Margin effect)

Variables	Total	Primary sector	Secondary sector	Tertiary sector
Gender	-0.011***	0.001**	0.010***	-0.148***
	(0.002)	(0.000)	(0.002)	(0.012)
Education	0.019***	0.000***	0.010***	0.078***
	(0.001)	(0.000)	(0.001)	(0.002)
Experience	0.006***	0.000**	0.003***	0.025***
	(0.000)	(0.000)	(0.000)	(0.002)
Square value of experience	-0.000***	-0.000**	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Marital status	-0.009***	-0.001**	-0.006**	0.017
	(0.002)	(0.000)	(0.003)	(0.012)
Forward (Except Brahmin)	0.010***	-0.000	-0.006**	0.115***
	(0.003)	(0.000)	(0.003)	(0.015)
SC & ST	-0.005**	-0.000	-0.027***	0.146***
	(0.002)	(0.000)	(0.004)	(0.016)
OBC	-0.004*	-0.000	-0.016***	0.076***
	(0.002)	(0.000)	(0.003)	(0.015)
Islam	-0.012***	-0.001**	-0.022***	-0.023
	(0.002)	(0.000)	(0.003)	(0.016)
Christianity	0.001	0.003*	-0.013***	-0.003
	(0.004)	(0.002)	(0.004)	(0.025)
Sikhism	0.059***	0.002	0.023**	0.175***
	(0.010)	(0.001)	(0.011)	(0.032)
Urban	0.100***	0.006***	0.069***	0.093***
	(0.003)	(0.002)	(0.005)	(0.010)
Northern	0.057***	0.007***	0.024***	0.148***
	(0.004)	(0.002)	(0.004)	(0.015)
Northeastern	0.134***	0.020**	0.041***	0.236***
	(0.011)	(0.008)	(0.010)	(0.021)
Eastern	0.013***	0.004**	0.018***	-0.049***
	(0.003)	(0.001)	(0.004)	(0.016)
Western	0.001	-0.000	0.039***	-0.025
	(0.003)	(0.000)	(0.006)	(0.017)
Southern	-0.024***	0.000	-0.008***	-0.199***
	(0.002)	(0.000)	(0.003)	(0.014)
Numbers of sample	94,680	32,127	29,868	28,815

Data: India Human Development Survey (IHDS-I & II)
Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

5.3 Decomposition of Wage Disparity

5.3.1. Decomposition of Wage Disparity

Table 18 shows the wage disparities by employment type across industrial sectors using the Blinder-Oaxaca decomposition, which clearly shows the differences in characteristics and discrimination related to the gap. Out of the total workers, casual workers earn about 70% compared with permanent workers' wages, showing 51.2% with explained parts as explanatory variables effect and 48.8% of unexplained parts that could be called discrimination in the total gap with a difference of 1.012. The difference in the part explained by the utilized variables is 0.518, which corresponds to 51.2%, and 0.494 in part not explained by the variables, which is 48.8%.

Besides, the gap is 0.565 and was explained by 54.5% of the variable of the study in the case of the primary sector. On the other hand, the income gap is displayed as 0.869 in the tertiary sector, more significant than the value of 0.655 for workers in the secondary sector. In other words, it means that the wages of permanent positions in the tertiary sector is higher than those in the secondary sector. In contrast, it shows that the proportion of the tertiary sector is large concerning the absolute value but explained part is similar at the 44% level with secondary sectors in the case of casual workers.

The result of the decomposition can be analyzed as follows. It indicates that the difference in wages between permanent and casual workers by industrial sectors. The gap of employment types classified by industrial sectors is narrower than the income disparity of all workers, which results from the reflection of the more significant gap of workers who are not classified by industrial sectors within the raw data. The disparity has widened in the order of tertiary, secondary, and primary sectors. In short, the wages in the primary industry are lower than those in other sectors on average, and it has such a gap with higher differences explained by variables compared to other sectors. However, the wage of casual workers is higher in secondary industries that those in tertiary industries. However, the wage for permanent employees in tertiary industries is higher and so is the wage gap between the employment types. Therefore, further research in detail is needed on the part of these wage differences, and it suggests in the next part.

Table 18. Decomposition of the wage disparity by sectors

	Total (Obs: 94,494)	Primary sector (Obs: 32,095)	Secondary sector (Obs: 29,809)	Tertiary sector (Obs:28,727)
Hourly wage of permanent workers	3.410	2.663	3.323	3.477
Hourly wage of the casual workers	2.398	2.098	2.668	2.608
Total wage gap	1.012 (100.0%)	0.565 (100.0%)	0.655 (100.0%)	0.869 (100.0%)
Differential part (Explainable part)	0.518 (51.2%)	0.308 (54.5%)	0.293 (44.8%)	0.379 (43.7%)
Unexplained part (Discriminative part)	0.494 (48.8%)	0.257 (45.5%)	0.361 (55.2%)	0.489 (56.3%)

Data: India Human Development Survey (IHDS-I & II)

5.3.2. Detailed Decomposition of Wage Disparity

This chapter has minutely analyzed what factors affect the wage difference by employment type by referring to the decomposition results that led to the above figure. Table 19 shows the results from analysis for all workers unrelated to industrial sectors, and Tables 20 to 22 show results examined for workers by primary, secondary, and tertiary industries, respectively. This analysis finds effects by variables between differential parts and unexplainable parts by further decomposing the difference in the wages by employment type for each industrial sector.

As shown in table 19, the wage of permanent workers is 3.410, but that of casual workers is 2.398, which shows differences of 1.012 by employment types. The most significant proportion of these gaps is 0.945 due to a variable of education years, and the explained part is 0.358, that is, 37.9%. It can be interpreted as the accumulation of individual human capital, as mentioned in the bibliography of chapter 2, showing significant effects from education on the differences in wages depending on the types of employment. The influence of religion has been not considerable, but it offers significant impacts to reduce the wage gap if it is related to low classes of the caste system.

In addition, according to regional standards, it indicates 0.124 from living urban areas, which significantly affects the widening of the gap. The effects also happened in the case of variables regarding living in the north, northeast, west, or east. On the other hand, a variable of living in the southern region makes sure that the gap depending on the employment types is reduced, unlike others, and these results are comprehended as a result according to local characteristics. In short, the impact on wage disparities by employment types of workers in India can be mainly explained by variables such as education and experience years and regional effects, regardless of whether it can be explained or not from variables.

Table 19. Detailed decomposition of the wage disparity

Variables	Total disparity	Differential part		Unexplainable part	
	Coefficient	Coefficient	Std. Err.	Coefficient	Std. Err.
Gender	-0.049	0.035***	(0.001)	-0.084***	(0.013)
Education	0.945	0.358***	(0.005)	0.587***	(0.016)
Experience	-0.150	-0.030***	(0.003)	-0.120**	(0.057)
Square value of experience	0.305	0.020***	(0.002)	0.285***	(0.032)
Marital status	0.056	-0.002***	(0.000)	0.057***	(0.014)
Forward (Except Brahmin)	-0.018	0.040***	(0.002)	-0.058***	(0.005)
SC & ST	-0.110	-0.034***	(0.002)	-0.076***	(0.007)
OBC	-0.119	-0.015***	(0.001)	-0.103***	(0.007)
Islam	-0.029	-0.004***	(0.000)	-0.026***	(0.002)
Christianity	0.002	0.006***	(0.001)	-0.004***	(0.001)
Sikhism	-0.004	0.003***	(0.000)	-0.008***	(0.001)
Urban	0.124	0.084***	(0.002)	0.040***	(0.007)
Northern	0.040	0.049***	(0.002)	-0.009*	(0.006)
Northeastern	0.032	0.029***	(0.001)	0.002	(0.002)
Eastern	0.018	0.000	(0.000)	0.018***	(0.003)
Western	0.023	0.000	(0.000)	0.022***	(0.003)
Southern	-0.037	-0.024***	(0.001)	-0.013***	(0.004)
Constant	-0.017			-0.017	(0.040)
Total	1.012	0.518	(0.005)	0.494	(0.007)

Data: India Human Development Survey (IHDS-I & II)
Notes: *, ** and *** indicate “significant” at the 10% level, the 5% level and the 1% level, respectively

Second, the wage disparity between workers in the primary sector is 0.565, as shown in Table 20. Unlike results for all workers, the difference in years of experience have the most significant impact, and the second has shown to be years of education, but this is not a factor that is mainly explained in the gap. In addition, in terms of caste, the difference in wages appeared to be significantly reduced, like table 19, and it shows that the weight of factors that cannot be explained is high in the case of workers belonging to a lower class. Moreover, it turns out that differences from religion are not as significant as overall gap between workers’ employment types. It appeared that, using regional standards as a factor, the wage disparity became extended when living in urban north, northeast, and east areas.

Table 20. Detailed decomposition of the wage disparity in the primary sector

Variables	Total disparity	Differential part		Unexplainable part	
	Coefficient	Coefficient	Std. Err.	Coefficient	Std. Err.
Gender	-0.121	0.051***	(0.004)	-0.172***	(0.055)
Education	0.466	0.093***	(0.009)	0.373***	(0.044)
Experience	0.898	0.027***	(0.008)	0.870**	(0.350)
Square value of experience	-0.273	-0.007**	(0.003)	-0.266	(0.203)
Marital status	0.001	-0.001	(0.001)	0.002	(0.066)
Forward (Except Brahmin)	-0.015	0.012**	(0.006)	-0.027	(0.018)
SC & ST	-0.113	0.006	(0.008)	-0.119*	(0.063)
OBC	-0.142	-0.031***	(0.008)	-0.112***	(0.040)
Islam	-0.009	-0.005*	(0.003)	-0.004	(0.008)
Christianity	-0.007	0.022***	(0.005)	-0.030***	(0.009)
Sikhism	0.007	0.012***	(0.003)	-0.005	(0.003)
Urban	0.067	0.026***	(0.004)	0.041**	(0.020)
Northern	0.092	0.091***	(0.010)	0.000	(0.027)
Northeastern	0.064	0.048***	(0.008)	0.016	(0.012)
Eastern	0.032	0.022***	(0.004)	0.009	(0.029)
Western	-0.002	-0.025***	(0.003)	0.023*	(0.013)
Southern	-0.036	-0.035***	(0.007)	-0.001	(0.029)
Constant	-0.342			-0.342	(0.236)
Total	0.565	0.308	(0.017)	0.257	(0.033)

Data: India Human Development Survey (IHDS-I & II)
Notes: *, ** and *** indicate “significant” at the 10% level, the 5% level and the 1% level, respectively

Third, the wage gap is 0.655 according to employment types in the case of workers in the secondary sector, more expansive than in the primary sector. First, gender affects widening wage inequality, unlike other industrial sectors. In addition, the influence of number of years of education on the wage gap is displayed at 0.751, which suggests significant impacts on expanding the disparity. As in other industrial sectors, factors such as low caste exacerbate wage inequality, but there are only slightly significant explainable and unexplainable numbers in the case of the Forward class, and religious factors are considered to be almost irrelevant with the inequality.

In addition, the wage gap by employment type was significantly widened when living in urban areas and for east, west, and northeast regions. However, it turned out not to be sizable compared to other industrial sectors. As a result, the wage disparity by

employment types shows that factors such as years of education and experience and gender mainly account for the explained part. However, the unexplained part consists of the number of years of education and the square value of the number of years of experience.

Table 21. Detailed decomposition of the wage disparity in the secondary sector

Variables	Total disparity	Differential part		Unexplainable part	
	Coefficient	Coefficient	Std. Err.	Coefficient	Std. Err.
Gender	0.056	0.053***	(0.003)	0.004	(0.044)
Education	0.751	0.207***	(0.006)	0.544***	(0.030)
Experience	-0.269	-0.010*	(0.005)	-0.259**	(0.122)
Square value of experience	0.399	0.010***	(0.003)	0.390***	(0.069)
Marital status	0.039	-0.001*	(0.001)	0.040	(0.031)
Forward (Except Brahmin)	-0.021	0.042***	(0.003)	-0.064***	(0.010)
SC & ST	-0.125	-0.045***	(0.003)	-0.080***	(0.012)
OBC	-0.132	-0.007***	(0.002)	-0.125***	(0.015)
Islam	-0.021	-0.004***	(0.001)	-0.016***	(0.004)
Christianity	0.002	0.002*	(0.001)	0.001	(0.002)
Sikhism	-0.002	0.002***	(0.001)	-0.004**	(0.002)
Urban	0.139	0.034***	(0.003)	0.106***	(0.016)
Northern	-0.023	0.007***	(0.002)	-0.030***	(0.010)
Northeastern	0.002	0.005***	(0.002)	-0.003	(0.003)
Eastern	0.022	0.001	(0.000)	0.021***	(0.008)
Western	0.010	0.009***	(0.002)	0.001	(0.007)
Southern	-0.042	-0.009***	(0.002)	-0.033***	(0.008)
Constant	-0.129			-0.129	(0.084)
Total	0.655	0.293	(0.008)	0.361	(0.014)

Data: India Human Development Survey (IHDS-I & II)
Notes: *, ** and *** indicate “significant” at the 10% level, the 5% level and the 1% level, respectively

Finally, it shows 0.869 in table 17, which is the highest number compared to other industrial sectors when looking at workers' wages in the tertiary sector by employment types. It shows that the years of education variable accounted for a high proportion of 0.821, as in the case of all workers. For gender variable, the value of -0.065 makes the gap narrow in the disparity.

In addition, the influence of low caste is relatively small in the wage disparity compared to other industrial sectors. It showed that religion's influence is not significant, but it has narrowed the gap to 0.031 for Muslims. It means reductions in wages from discrimination effects against Muslims in India. Moreover, it indicates significant impact at 0.076 when living in the urban area and has widened the gap in northern, northeastern, and eastern regions. For workers in the tertiary sector, as with all workers, years of education have had the most significant impact to extend the gap, showing that the accumulation of human resources has a significant influence on wage gap based on employment types in India.

Table 22. Detailed decomposition of the wage disparity in the tertiary sector

Variables	Total disparity	Differential part		Unexplainable part	
	Coefficient	Coefficient	Std. Err.	Coefficient	Std. Err.
Gender	-0.065	-0.009***	(0.001)	-0.057***	(0.019)
Education	0.821	0.281***	(0.006)	0.540***	(0.024)
Experience	-0.196	0.060***	(0.005)	-0.257***	(0.077)
Square value of experience	0.304	-0.014***	(0.003)	0.318***	(0.042)
Marital status	0.035	0.000	(0.001)	0.035*	(0.019)
Forward (Except Brahmin)	-0.023	0.017***	(0.002)	-0.040***	(0.007)
SC & ST	-0.030	-0.002**	(0.001)	-0.028***	(0.009)
OBC	-0.066	-0.008***	(0.001)	-0.058***	(0.010)
Islam	-0.031	-0.005***	(0.001)	-0.026***	(0.004)
Christianity	0.003	0.002***	(0.001)	0.001	(0.002)
Sikhism	-0.004	0.000	(0.001)	-0.004***	(0.001)
Urban	0.076	0.022***	(0.002)	0.054***	(0.011)
Northern	0.064	0.038***	(0.002)	0.027***	(0.007)
Northeastern	0.037	0.030***	(0.002)	0.006**	(0.003)
Eastern	0.027	-0.002***	(0.001)	0.029***	(0.005)
Western	0.009	0.001	(0.001)	0.008*	(0.004)
Southern	-0.045	-0.032***	(0.002)	-0.012*	(0.007)
Constant	-0.047			-0.047	(0.059)
Total	0.869	0.379	(0.007)	0.489	(0.010)

Data: India Human Development Survey (IHDS-I & II)

Notes: *, ** and *** indicate "significant" at the 10% level, the 5% level and the 1% level, respectively

5.4. Estimations of Wage Disparity according to Income Quantiles

5.4.1. Decomposition of Wage Disparity in Income Quantiles

Table 23 indicates the wage gap between permanent and casual workers according to changes in the wage quantile using Juhn-Murphy-Pierce decomposition for the entire sample. As mentioned earlier, the overall difference in average wages between permanent and casual workers is 1.012, but the disparities appear to widen as income groups rise in general. The human attribute difference observed in the m-th quantile changes in the n-th quantile as the change in the reward received by the human attribute in the labour market. The lowest gap appeared at 0.678 in the 50th quantile, and the largest gap appeared at 1.263 in the 90th quantile. It suggests that permanent and casual workers' wage gap gradually increases when the quantile of wage rises from these results. On the other hand, it shows that the 95th percentile quantile wage gap fell a little to 1.232, a slight decline from 90%.

These results suggest that permanent workers who belong to a high-income group have relatively excellent attributes of human resources, which can thus be highly rewarded. On the other hand, it implies that casual employees have a limited increase in income even if the wage quantile increases due to weak human resources of the workers. Effects of unobservable quantities & prices appears to be relatively little with continuous variability, which means that discrimination based on the type of employment has little impact on the wage disparity between permanent and casual workers according to income quantile. In short, there is a limitation to the increase in wages because of discrimination from the type of employment. It could be a factor that negatively affects the wages and causes the income inequality to widen further at the same time.

Table 23. Decomposition results from income quantile by employment types

		Total disparity	Observable quantities	Observable prices	Unobservable quantities & prices
Total workers	Mean	1.012	0.792	0.220	0.000
	5%	0.678	0.681	0.089	-0.092
	10%	0.870	0.749	0.108	0.012
	25%	0.980	0.818	0.131	0.032
	50%	0.940	0.808	0.131	0.001
	75%	1.121	0.839	0.277	0.005
	90%	1.263	0.848	0.368	0.047
	95%	1.232	0.758	0.377	0.097
	90%-10%	0.393	0.098	0.260	0.035
	90%-50%	0.323	0.040	0.238	0.045
	75%-25%	0.141	0.022	0.146	-0.026
	50%-10%	0.070	0.059	0.022	-0.011

Data: India Human Development Survey (IHDS-I & II)

5.4.2. Decomposition of Wage Disparity with Sectors in Income Quantiles

Table 24 shows the wage gap between permanent and casual workers by industrial sectors in detail. The average wage difference in the primary sector is 0.565, as mentioned above. The smallest gap is 0.064 in the 5th quantile, and as the income quantile increases, the hourly wage gap continues to increase to 1.190 at the 95th quantile. In addition, observable quantities have remained at the range of 0.3 in the group under the 50th quantile. In contrast, it has surged by over 0.6 in the 75th quantile, which means the continuous increase over the quantiles of the whole sample. These could be interpreted as results of the gap between permanent and casual workers in the primary sector, where compensation for human resources attributes has a more significant impact than discrimination by employment types. Plus, it continues to increase to 1.098 at the 90th quantile, and that of the 95th place indicates 1.190, and the gaps between the 90th and 95th quantiles have been broadened, unlike the small-scale expansion for each part as observed for whole sample of workers. Therefore, it means that the wage disparity is exacerbated in the discrimination part if the quantile of hourly wages is higher due to differences from employment type in the case of the primary sector.

Second, changes in income quantile accounts for the hourly wage gap between permanent and casual workers in the secondary sector. The average wage gap is 0.655, as mentioned earlier. It has shown the smallest gap with 0.319 in the 5th quantile, and then gradually increased to 1.008 in the 95th place like the rise in other sectors. The wage gap by employment types continues to increase up to the 90th quantile that is considered as high wage group unlike the average of all workers or workers in the tertiary sector, which is due to the change of the Observable prices that is increased from -0.092 at 5th quantile to 0.235 of 95th quantile, showing changes for Unobservable quantities & prices from -0.092 at 5th quantile to 0.172 at 95th quantile. It presents discrimination due to the secondary sector's employment types, but it does not significantly affect the overall wage gap. However, it suggests that the greater the discrimination between employment types in the secondary sector, the higher is the wage gap according to the quantile increment than other sectors.

Third, the wage disparity per-hourly among workers in the tertiary sector by employment type is 0.869. It continued to increase from 0.530 in the 5th quantile to 1.008 in the 90th quantile, attributed to the rise in the effects of observed price. Although there have been changes in the effects of “observable quantities” and

“unobservable effects”, it clearly shows that overall disparities are relatively smaller than others. As a result, the tertiary sector's average disparity is more significant than that of other sectors. The disparity due to the quantile is generally large in the tertiary sector. The overall disparity has increased from the low-quantile, such as 5th quantile with small decrement beyond 90th quantile. In the case of the primary sector, it has gradually been rising, especially for above the middle class, from the effects of the observed price, which means considerable compensation due to the differences in human attributes for permanent workers. In addition, these ideas regarding compensation could be applied to all sectors. However, industry-specific results ultimately show discrimination by employment types associated with rising income quantiles. However, the differences in the tertiary sector are relatively straightforward, regardless of income quantile. In the primary and secondary sectors, it has been shown that the disparity is not large when the income quantile is lower. Therefore, the gap is large for higher quantiles of income, and it is more remarkable in the primary sector, especially.

Table 24. Decomposition results from income quantile by employment types

		Total difference	Observable quantities	Observable prices	Unobservable quantities & prices
Primary sector	Mean	0.565	0.444	0.120	0.000
	5%	0.064	0.266	0.037	-0.238
	10%	0.301	0.330	0.034	-0.062
	25%	0.275	0.259	0.045	-0.029
	50%	0.469	0.297	0.139	0.033
	75%	0.875	0.615	0.206	0.055
	90%	1.098	0.770	0.191	0.137
	95%	1.190	0.780	0.237	0.173
	90%-10%	0.797	0.440	0.157	0.200
	90%-50%	0.629	0.473	0.052	0.104
	75%-25%	0.600	0.356	0.161	0.084
	50%-10%	0.168	-0.033	0.105	0.096
Secondary sector	Mean	0.655	0.571	0.083	0.000
	5%	0.319	0.503	-0.092	-0.092
	10%	0.455	0.576	-0.060	-0.062
	25%	0.481	0.553	-0.014	-0.058
	50%	0.617	0.551	0.092	-0.027
	75%	0.795	0.638	0.114	0.043
	90%	0.966	0.610	0.197	0.158
	95%	1.008	0.600	0.235	0.172
	90%-10%	0.511	0.034	0.257	0.220
	90%-50%	0.348	0.059	0.105	0.185
	75%-25%	0.314	0.085	0.128	0.101
	50%-10%	0.162	-0.025	0.152	0.035
Tertiary sector	Mean	0.869	0.520	0.349	0.000
	5%	0.530	0.395	0.209	-0.074
	10%	0.694	0.501	0.204	-0.011
	25%	0.856	0.566	0.281	0.009
	50%	0.933	0.557	0.348	0.028
	75%	0.982	0.556	0.407	0.018
	90%	1.008	0.509	0.484	0.016
	95%	0.982	0.404	0.573	0.005
	90%-10%	0.314	0.008	0.280	0.026
	90%-50%	0.075	-0.048	0.136	-0.012
	75%-25%	0.126	-0.010	0.126	0.009
	50%-10%	0.239	0.056	0.144	0.038

Data: India Human Development Survey (IHDS-I & II)

CHAPTER 6

CONCLUSION

6.1. Summary

This study begins with the assumption that belonging to the specific industrial sector of workers could affect the earnings structures that could cause the wage gap. In the base of the hypothesis, this paper set out to analyse structures by employment types, both permanent and casual types in the compensations differences by the industrial sectors, which makes difficulties in changing economic ranking due to widening the disparities between rich and poor in dual discriminations coming from the individual affiliation. The purpose of the study is to estimate these areas by using the panel data from the India human development survey (IHDS) that provides personal information on a sample of people from all regions of India for two-time spans, 2004-2005 and 2011-2012.

Therefore, the analyses in this study are based on various references below. First, India has selected social democracy since its independence. However, it has eased regulations with the revitalization of trade-in globalization since the economic reforms of the 1990s due to the economic crisis. It makes the economic scale of the secondary and tertiary industries expand over the primary sector, and it has been examined through the weight of GDP of each sector. Such changes have also caused transitions in the labour market that also effects worker, especially compensations for workers across categories like industrial sectors, which led to economic polarization in Indian society. Especially, the wages of all workers were relatively low. The difference between salaried workers was also not distinct across the board before the economic reforms. However, the scale of wages has been expanded with development over time until the 2010s except by the primary sector. It makes it evident that the difference between industrial sectors has statistically grown as well. Especially, the wage difference in the tertiary sector has tripled and become more significant than the primary sector. In particular, excessive preferential treatment for permanent employees under rigid labour law in India has mass-produced casual types, as mentioned above. It expanded multi-layered discrimination in the labour market. It means that India's traditional discrimination, such as gender, traditional caste system, and region, leads to widening

the economic disparities, which is why we need to pay attention to these combined parts that makes inequality more severe.

In general, labour wages have been analyzed from various perspectives. In particular, based on human capital theory, personal factors such as the education and experience of labourers have mainly influenced individual wages. The procedures of the study are as follows. First, wage determinants are analyzed by showing determinants of employments types, which help to understand the impact on workers' wages in each category and find the determinants of a permanent position that is considered as receiving better treatment. In addition, it carried out Oaxaca-blinder wage decomposition to explain their wage gap to examine factors contributing to the disparity. As a result, the wage differences are divided into two parts, that is, explainable and unexplainable parts, over variables to find discrimination by comparing industrial sectors. Finally, the wage gap by employment types among industrial sectors is also analyzed by the Juhn-Murphy-Pierce (JMP) decomposition by adding the concept of wage quantile, which helps find how wage inequality changes across industrial sectors due to the income distribution. Based on this, the following conclusions can be drawn by analyzing and decomposing wages using various explanatory variables.

The main contents of this research are summarized as follows. First, the results of this study indicate that the effects of variables on the wages of workers in each industrial sector are different, which is interpreted as a result of differences in wage structures due to industrial characteristics. It has been found that education and experience variables, as the theory of human resources mentioned above, have main influences regardless of industrial sectors. The results indicate that the caste system, religious factors and regions differ in scale from effects depending on the characteristics of industrial sectors with employment types. These findings have significant implications for understanding the effects of different sector on wages.

Second, we have shown the determinants of each type of employment. These findings indicate that, in general, permanent positions have been judged to be relatively superior employment, which was also considered to be a socially favourable factor for standard workers to be more likely to engage in permanent jobs. For example, factors such as years of education, training and experience are also applicable. It was found that they are affected by caste and religious factors and have an overall multifaceted effect depending on the regional location. It can thus be suggested that the determinants differ by industrial sectors and employment types as well. Also, analysis results imply

that the employment type, ultimately determined through factors such as education and experience, could be a means of the passing down of wealth as upper groups can be more likely to access opportunities for social achievement.

Third, the contribution of this study is that it decomposed the wage gap of workers by each category. In the case of total workers, it can be seen that there is a significant difference in the hourly wage between permanent and casual workers at 1.012. In this disparity, it is displayed that 0.518 (51.2%) is from effects of explanatory variables. On the other hand, when classified by industrial sector, the wage disparity widens in the order of tertiary, secondary and primary sectors with the increment on the wage scale. The empirical findings in this study provide a new understanding of the effects on workers' wage structure by the industrial sector as the premise of this study. In particular, permanent workers in the primary sector show the same figures as casual in the secondary and tertiary sectors from employment types. In addition, the explanatory variables that indicate individual characteristics are also displayed as 54.5% for the primary sector but about 44% for both secondary and tertiary industries. It means the proportion of gap by sectors that cannot be explained is displayed as higher, which could be from discriminations of employment types. Therefore, more considerable differences may occur depending on the employment type even though each individual has the same variables, and the disparity is due to the industrial sector that the workers are affiliated with.

Finally, we tried to investigate the effect of wage quantile of workers on these wage gaps. In the case of all workers, this research's results support the idea that the wage gap widened as the wage quantile increased. The scale is not large up to the 50% level, but it appears due to a significant expansion in the primary sector. In the case of the secondary sector, the shape is similar as well but turned out to be considerable according to the employment types. On the other hand, in the case of the tertiary sector, the overall scale is more extensive in the gap than the others when the wage quantile is increased in the distribution. In general, therefore, it seems that limitation of the range of wage increases in the case of casual workers even if the quantile of income rises, and these factors are expected to lead to widening of the economic gap between rich and poor. In short, the hypothesis of this study that wages are affected by employment types based on the industry is valid from the analysis results.

6.2. Implications

Based on the summary of the findings of this study, this part suggests the necessity to consider the following points. Factors about research, education, and technique have played a key role in determining economic growth (Aiginger 2005). However, society's rigidity from discrimination can bring difficulties to sustainable economic development and reduce the quality of life of the people. The rigidity of the hierarchical labour market has a long-term negative impact on productivity and efficiency and workers' motivation in substructures. The bottom line is that it can interrupt the economic growth rate in the long term because of lack of motivation for work despite sustainable economic growth in India. Moreover, such trends can be accelerated or weighted in severity in response to changes in various factors like population structure over time.

According to the theory of endogenous growth, development has led to long-term economic growth due to technological progress within the economy (Romer 1994). The theory argued that intellectual capital, which contains the knowledge generated by the labour force, is within these capitals for growth. In addition, such intellectual capital can be utilized by workers who have the foundation of appropriate human capital. It is expected that productivity will be improved by learning techniques which will help promote growth. From this perspective, the problem is that inequality in the labour market may disturb the innovation in human resources leading to the decline in economic growth.

Therefore, following recommendations can be made from the analysis results. According to this study, we could confirm the wage disparities between workers in different sectors. We also identify that various explanatory variables affect workers' wages according to the industrial sectors and employment types. However, the cause of this discrepancy in wages could be due to compensation based on human factors and industry structures. For example, the secondary and tertiary sectors occupy a relatively high proportion in urban areas. In the case of the secondary sector, urban workers are given high compensation as they tend to do complicated labour requiring specific education and training. On the other hand, in rural areas, the primary sector is a relatively high proportion. It can be inferred that relatively low compensation is given to rural workers because of the relatively simple labour characteristics with high labour supply in the primary sector with low profitability.

The findings suggest that the labour market of India should take into account the wage disparity according to the category for the long-term sustainable growth because the inequality of wage could lead to the inefficiency in the market economy as a result of the failure in the development at the macroeconomic level (Cuberes & Teignier-Baqué 2012). To overcome the inequality, policies for wage disparity should proceed in the direction of decreasing the differences in individual human resources by workers in terms of the industrial sectors at first, which means it is necessary to eliminate unnecessary discrimination of workers through offering appropriate public or social policies (Azam 2012). In other words, it is required to strengthen the qualitative competitiveness of workers who belongs to weak classes through policy support such as education and training programs to improve the difference in the productivity of workers who belong to lower classes, and it is inevitable for promoting better employment opportunities in the secondary and the tertiary sector. Especially, there is a need to investigate factors that results in exclusion of people from social opportunities such as education due to factors such as the Indian caste system, region and religion in India before the occurrence of discrimination in the labour market.

The observation may also support the hypothesis that it is necessary to expand the high productivity of primary sectors in rural areas. It has various problems, while India's agriculture mainly accounts for the primary sector, which has a large cultivated land. Insufficient social Indirect capital, reduced productivity by small-scale farmers, and lack of technology has caused inefficiency in the sector. Therefore, there is a need to improve agricultural productivity to strengthen the overall income and improve the competitiveness of agriculture by exporting agrarian produce for converting the agriculture to a higher value-added business at the end.

Secondly, these results further support the hypothesis that there is a need for establishing an unbiased system in which wages are determined according to individual characteristics and outcomes rather than employment types. More improvement would lead to more labour force and human resource development. These can positively improve the discrimination based on various factors existing in labour markets across-the-board such as gender, educational background, and regions, making India's economy balanced. Furthermore, raising the income level of workers in low-income jobs increases purchasing power by creating demand in the market, which could help in long-term economic growth.

Therefore, these discriminations may make each individual self-regulate their actions in the class and maintain and sustain these disadvantages with social identity (Hoff & Pandey, 2004). Thus, the disparity can be inferred as a result of the individual productivity in the labour market. This is consistent with the theories of labour market. However, this can be revisited for all the sectors from different aspects. The reason is that compensation in the labour market, such as affiliation and wages of each individual, may not be a result of individual's productivity alone. Each factor depends on the individual's efforts from the results of the quantitative analysis. For example, due to embryonic factors such as gender and caste and irrational discrimination based on religion, each individual can inevitably belong to an illogical hierarchy. The factors such as individual education and experience are also based on the hierarchy to which each individual belongs, which can be the result of the parent or the birth environment in which they were born. In other words, if these trends continue, we need to prefer to wonder if it is fulfilling the role of a sustainable market economy.

Especially, discriminations from the caste system have harmed society's economic efficiency, limiting the scope of individual economic activity by the system (Thorat & Newman, 2007). In fact, in some studies, individuals belonging to a particular caste have been affected by education, income and social networks according to their caste (Desai & Dubey, 2012). These phenomena could lead to some inefficiency in the economic system's circular flow due to the inefficiency of resource allocation. It could be further complicated if such inefficiencies are connected with the system of the employment types. Therefore, employment stability for casual workers should be improved in the system and supplemented with financial support for provisional unemployment for better treatment in the long run. From another perspective, it also seems necessary to consider additional support for the low-income group, such as increasing employment stability by converting casual positions to permanent jobs, raising the minimum wage and supply of unemployment benefits or subsidies in a dimension of coexistence in the process of economic development.

Besides, there are some concerns about labour laws in India. The labour law is mainly applied to the permanent employment. The revision of the laws to strengthen the flexibility of the labour market has been delayed or implemented for political reasons. Therefore, the rigidity of the labour market in the permanent sector not only led to the mass production of non-permanent workers but also contributed to the economic growth without employment boom during the 2000s because companies tend

to solve the problems of supply and demand for employment through the increase of contractual and temporary non-regular employment. Therefore, ensuring the flexibility of specific workers is an issue for the Government of India. It shows the need to access the same context to improve the treatment of the vulnerable in the labour market with the relief from discrimination in terms of laws. As can be seen from the results of this study, wage discrimination has been discovered according to the employment types of each industrial sector. Thus, there seems to be a need for measures that can relatively mitigate bias in these areas in the long run.

6.3. Future Study and Limitations

This chapter discusses additional research areas and limitations of this study. The present results are significant for understanding sectoral wage disparities in India. Future questions raised by this study require a more detailed analysis that reflects the characteristics of India's inherent labour market. Previous researches in the area seem to lack studies in the categories of permanent and casual types for India, so more systematic studies are needed to mitigate discrimination in these sectors. More work needs to be done to comprehensively predict the Indian labour market in response to industrialisation changes in development.

Wages are challenging to regulate due to various qualitative differences that cannot be quantified. However, qualitative problems in the labour market due to the fixed structure that accompanies growth may exacerbate over time, and therefore preparations seem necessary. Discrimination in the labour market tends to contradict the issues of efficiency and equity. Together with these issues, to proactively promote the growth trend along with employment like other developed countries, it is necessary to consider the current labour market direction and the economy's expansion. Therefore, it suggests need for further analysing the current status regarding discriminations in the labour market in India.

Additionally, factors related to human resources usually play an essential role to determine the inequality for permanent type of employment. However, geographical effects affect the inequality for workers of casual type as well, which have a relation with the income characteristics of the broad region. In addition, each region has various forms of industrial structure and related policies in India. The study needs to be repeated

using the regional concept to find solutions to relieve discrimination from classifications reflected from each district.

A limitation of this study is that the panel data only includes two-time series. It seems that analysis through more abundant and recent materials is necessary for a more systematic study. Furthermore, the data is limited by the lack of information on the sample. The number of permanent workers in the primary sector is tiny, and the classification of employment type is ambiguous, showing the need for considering these limitations in the analysis of the results.

Finally, the wages in this study are based on hourly wage in terms of compensation for worker productivity. The problem is that permanent workers tend to receive high wages during a fixed period in a stable environment. On the other hand, casual workers compensate low wages for uncertain hours in unstable employment. Therefore, it is necessary to keep in mind that there is a more considerable disparity depending on the type of employment besides wage disparity for future researches.

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