

**The Impact Of Tangible And Intangible Assets On Income  
Distribution**

By:  
Samuel Bamfo  
S.N: 05 92 41

Major Paper presented to the Department of Economics of the  
University of Ottawa in

partial fulfillment of the requirements of the M.A. Degree.

Supervisor: Professor Mario Seccareccia

ECO 7997

Ottawa, Ontario

June 1996

# 1.INTRODUCTION

The purpose of the paper is to illustrate the relationship between ethnic origin and income distribution. We will also examine some key intangible assets and how they also affect income distribution. There are several components which make up ethnic diversity. The study will focus on ancestral background and cultural traits intangibles. Modern economic theories have demonstrated that peoples' tangible assets (such as educational levels and skills) have significant influence on their labor market position and level of compensation. However, peoples' intangible assets (such as ethnic background, ethnic origin or race and gender) have been shown to influence labor market position and levels of compensation.

The paper will describe ethnic origin and its relationship to income distribution. This is done by using data from Statistics Canada pertaining to several measures of income distribution. In particular, the two income variables used to show this relationship are average individual income and household income. In both cases, data for various groups are used to demonstrate the relationship between ethnic origin and income distribution. Generally in labor economics, this relationship can be explained by a number of competing concepts.

The concept of human capital is one of the concepts used to assess this relationship. Within this area in economics, the human capital literature is divided into two major schools of thought: the supply-side analysis (also known as traditional human capital approach) and demand-side analysis (also known as signaling or structuralist approach). The evolution of these competing approaches is illustrated by reviewing some of the relevant literature.

Another economic theory used to explain the relationship is that of labor market discrimination. This theory explains the relationship by way

of three general concepts. The three concepts are personal prejudice, statistical discrimination and monopoly power. Whenever possible, the economic literature will be used to highlight and discuss these concepts and to analyze how they may affect income distribution.

The paper will attempt to explain and establish a relationship between intangible assets and income distribution. For this paper, an intangible asset is not only an asset that is difficult to measure, but it is also an asset that cannot be controlled by the individual or group. In some cases, these assets are easily observable but cannot be controlled by the individual. Examples of these kinds of assets are gender, immigration status, and socio-economic background. On the other hand, some assets are difficult to observe or measure and cannot be controlled. Examples of these assets are ability and race.\* Tangible assets, on the other hand, are assets that are measurable and controlled by the possessor. Examples of tangible assets include the level of education and work experience. Again, economic literature will be used to illustrate how these intangible assets affect income distribution.

There have been several policies in Canada and the U.S. aiming at influencing income distribution. The paper will examine several of these income and employment equity legislations in Canada and the U.S. and the extent to which they address both the relationship between income and tangible assets and income and intangible assets.

The main body of the paper will be structured in the following manner. Section 2, Income distribution, is the title of the main section in the body of the paper. This is followed by sub-sections 2.1, 2.2, 2.3 and 2.4 which are respectively titled: Human Capital Approach, Theories Of

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\* In the case of immigration, the lack of control arises because individuals cannot change their status as immigrants in a given society once they have taken the initial step to emigrate from their country of origin.

Labor Market Discrimination, Intangible Assets and Policies To Combat Labor Market Discrimination.

The study will conclude by showing the effects, contributions and influences that tangible and intangible assets have on income distribution. As well, we will describe some of their indirect impact on social behaviour. Finally, the study will illustrate the need for researchers to pay particular attention to research that takes into consideration the impact of the intangible asset on income distribution.

## 2. INCOME DISTRIBUTION

Canadian Census Data for 1986 illustrate the differences in incomes amongst groups of different ethnic origins. Table 1 below displays these income differences for five randomly selected groups identified according to their ethnic origins. The groups selected in this case are Jewish, British, French, Blacks and Aboriginal ethnic origins. To avoid the problem of multiple origins, ethnic origin in this case is restricted to individuals who reported only one ancestral background.\* The average income category represents the average incomes of each ethnic origin for 1986. Table 1 shows the difference between each ethnic origin's average income and the national average for 1986.

**Table 1**  
**Average Individual Income by**  
**Ethnic Origins, Canada, 1986**

<b>ETHNIC ORIGINS</b>	<b>Average Incomes</b>	<b>Difference From CD. Average</b>
<b>Jewish</b>	30,229	+12,226
<b>British</b>	18,595	+592
<b>French</b>	16,830	-1,173
<b>Blacks</b>	15,519	-2,484
<b>Aboriginal</b>	10,694	-7,309
<b>Canada</b>	18,003	0

Source: Statistics Canada Census 1986

Noting that the average individual income for Canada in 1986 was \$18,003, one can see that individuals with different linguistic or racial origin such as

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\* Note that these single-origin groups are defined either by their language and culture, religion or race. For example, the title of Blacks and Aboriginals are racial affiliations. The titles of French, British and Jewish are language, cultural and religious affiliations.

low income brackets. The majority of Aboriginal household incomes fell into the interval of 0-\$19,999 (low household income). Also, a large number of Blacks and individuals of French origin fall into the income interval of \$20,000-\$39,999. There is a large concentration of individuals of British origin in the \$40,000-\$99,999 income bracket. Also, a large number of individuals of Jewish origin were concentrated in the income bracket of \$100,000 and over. Both tables of individual and household income distributions (shown in tables 1 and 2) demonstrated patterns of inequality in Canada.

The unequal distribution of income based on intangible assets such as race has been the subject of voluminous research carried out by social scientists. In the area of labor economics, the subject has produced countless theoretical and empirical results. The human capital approach and theories of labor market discrimination are the most widely used to assess the impact of tangible and intangible assets on income distribution.

## **2.1 Human Capital Approach**

In human capital research, the relationship between tangible assets and income which influence individual and group productivity in the labor market have propagated a debate between two general points of view. The first view, often called the supply side approach, supports the notion of significant and direct link between these measurable attributes of individuals and groups and the productivity associated with them. The other point of view, the demand-side approach, identifies the significance of using these assets as screening variables that influence a firm's hiring decision. In turn, this decision has a significant impact on the income levels of individuals and groups. The paper gives further accounts of both points of view. Also, in order to explain these points of view, a review of

the relevant economic literature is undertaken. The literature examples will follow a chronological order to show the general evolution of the subject in this field of economics.

The choice of whether to take a job immediately or to continue one's education has the characteristics of an investment decision. Education has become a necessity in gaining access to higher paying occupations in the work force. Higher education allows individuals to attain higher financial rewards. Beside their pure labor (physical aspect of the worker), workers bring to the market the value of the education that they have acquired. Quantified and differentiated, education and skill show the amount of potential productivity that each worker possesses. Therefore, traditional human capital approach tries to quantify the tangible assets of workers (such as their educational knowledge, years of experience and training) to form relationships with income. Clearly, this approach separated the worker's tangible and intangible assets.

Classical economists recognized the importance of the qualities attributed to the worker. Adam Smith recognized the importance of attaining tangible qualities and characteristics such as education and skill. In acquiring education and skill, he concluded that individuals give up immediate rewards to capture greater rewards in the future.<sup>1</sup>

The drive to establish a relationship between income and tangible assets such as education led to the development of theoretical models. Whereas one's level of education became the primary basis for estimating income, other studies linked the issue of productivity to that of investments in human capital. Hence, research and literature slowly transcended from the acknowledgment of a positive relationship between education and income to the more intricate study relating human capital,

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<sup>1</sup>Smith (1937), pp.1-16

education, productivity and income.

Additional analysis by neo-classical economists supported the relationship between measurable tangible assets such as the level of education and income. For example, a study conducted by Conroy (1964) further established empirically the positive relationship between education and income in Mexico.<sup>2</sup>

Traditional human capital theorists, such as Becker (1964), provided examples of models that individuals or firms use as a criterion to invest in human capital. Here, training is a variable that plays a major role in determining the productivity of the individual. Following Becker's study, suppose  $MP_t$  is the marginal product at time  $t$ ,  $W_t$  is the wage rate at time  $t$ ,  $C$  is the cost of education (training) to firms and  $(G)$  is the excess revenue from future productions over future wage rates. The inter-temporal maximization process then implies taking the present and expected future discounted marginal products and equating them to the present and future discounted wage rate and to the cost of education and training, as illustrated algebraically below.

$$MP_t = W_t$$

$$MP_0 + \sum_t [(MP_t)/(1+i)^t] = W_0 + C + \sum_t [(W_t)/(1+i)^t]$$

$$MP_0 + \sum_t [(MP_t - W_t)/(1+i)^t] = W_0 + C$$

$$MP_0 + G = W_0 + C$$

where  $G = \sum_t [(MP_t - W_t)/(1+i)^t]$

if  $MP_0 = W_0$  then

$$G = C$$

After the manipulation of the algebraic terms, the excess revenue  $(G)$  is

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<sup>2</sup>Conroy (1964), pp.200-215

equivalent to the value of the net present and future production. If present marginal product  $MP_0$  is the same as the present wage rate  $W_0$ , then excess revenues from future productions (G) are equivalent to the cost of investing in human capital (C).<sup>3</sup> In this case, human capital has measurable qualities represented numerically. The numerical representation allows for the measurement of human capital investments. So, human capital investment (such as education) may yield a substantial return in the future. An educated worker yields greater productivity over time, and an increase in the amount of educational investment in human capital brings about greater returns in productivity.

This notion was supported by Hanoch (1965), who formulated an income function showing education to be a major factor in the determination of income. Thus, in both cases, education was an important factor in the estimation of income functions and in the determination of future investment income.

However, by the end of the sixties and beginning of the seventies, Schultz (1970) illustrated the train of thought up to that point in time with the following:

**"..An approach that treats investment in education as a means of improving the quality of the human agent is an important step in leading to the specification and measurement of the quality of both human and non human capital, and thus accounting for the increases in macro production without any appeal to technical change."**<sup>4</sup>

Most often, traditional human capital analysis evaluates the income and education relationship from the supply side of the labor market, whereby tangible assets such as education become an important and essential tool in the acquisition of income for the individual. Higher

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<sup>3</sup>Becker (1964), pp.50-65

<sup>4</sup>Schultz(1970), p.155

educated individuals have greater income levels and productivity. However, empirical testing of the relationship between education and income gave rise to further questions as to the nature of the relationship.

A group referred to as signaling (screening) theorists formulated a critique of traditional human capital theory. The signaling theorists argue that firms use tangible assets such as the level of education to allocate individuals to specific areas of the labor market. Firms monitor and assess the assets acquired by applicants. The screening theorists viewed the level of education as a signaling device that may or may not induce productivity. The level of education may be used to differentiate amongst workers' potential productivity and potential income.

Aside from supporting the signaling approach, the structuralist approach identifies two points of entry into the labor market. The two points of entry allow access to the external and internal labor markets. The external and internal labor markets combine to form a complete labor market. The external labor market is the first point of entry into the total labor market. This is the area of the labor market where a firm screens for such assets as education and selects individuals into its internal labor market. Individuals only need to acquire these assets (or signaling characteristics) in order to enhance their chances of moving into the internal labor market. The internal labor market is the area where on-the-job training occurs for individuals selected from the external labor market. It is important to note that both components of the labor market rank individuals and groups. For example, the external labor market may rank individuals or groups based on the level of tangible assets (education and other readily available characteristics) acquired by the individual. In the internal labor market, firms may assess individuals based on several of these tangible assets such as language proficiency, experience and training

on the job.

Both entry levels of the labor market may play a significant role in the determination of income. However, the internal labor market appears to be the most influential. Thus, any influence on income would have to take these sectors into account. A study to examine the results of educational equity policies in the U.S. (and therefore their possible influence on income distribution) led Thurow and Lucas (1972) to conclude that the outcome of such policies is to alter the income levels of a particular minority or majority group. Usually, this alteration is represented by an increase in the variance of the group's income levels.

**"Equalizing the distribution of education should equalize the earnings from human capital. However, it does not necessarily lead to a more equal distribution of total earnings. As long as the variance in the returns to human capital are larger than the variance in the returns to pure labor income, increasing the quantity of human capital (education) may increase the variance of total income.."**<sup>5</sup>

Accordingly , educational equity policies may have a significant impact on labor markets. However, this impact may be more so on the external sector of labor markets than on the internal sector. In that case, these policies may be geared towards affecting tangible assets that influence the supply of the labor and may alter income level variance of certain groups within the external labor market. For this reason, Thurow and Lucas argued that substantial income redistribution may only be possible from policies that concentrate on the demand (employer side) for labor rather than just the supply (employee side).<sup>6</sup> Indeed, to the extent that demand for labor pertains primarily to the internal labor market and supply adapts to the structure of this demand largely through on-the-job-training, it is

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<sup>5</sup>Thurow and Lucas (1972), p.16

<sup>6</sup>ibid., pp. 16-50

conceivable that policies which affect firms' hiring practices may have an impact on overall income distribution. Further illustration of this notion is shown through Thurow's extension of this study.

In an extension of the results obtained in 1972, Thurow (1975) provided an example of screening (signaling) by education levels. This led to his job competition notion. In the job competition model, individuals do not acquire job skills before entering the (external) labor market. Instead, they learn these skills on the job (comparable to the internal sector of the labor market). The firm fills trainable job positions with able workers. The job market is not an arena where individuals sell their education and skills, but rather where individuals are selected by the firm in accordance with the perceived cost of training individuals.

Often, the trainable job positions begin at the bottom of a job ladder (the ladder may be found in the internal labor market). Individuals compete for openings in the job ladder. During the competition, the firm may sort individuals into queues ranging from highest to lowest potential productivity. Other than tangible assets, firms may use intangible assets, such as ability, ethnic origin, and family or socio-economic backgrounds of parents, to screen applicants.

As mentioned, firms will train the applicants with the lowest training cost. Screening identifies applicants who have low training costs. So, an increase in the level of education may bring out the worker's potential productivity, low training cost and earning potential. Workers with high educational attributes benefit the most. Most often, it is these workers who have the best opportunity to continue their education. Any increase in the demand by firms for educated applicants may benefit those who possess the opportunity to acquire further education. In turn, higher incomes motivate applicants to acquire further education.

Frequently, this scenario may take place in the upper echelon of the internal and external labor market queues mentioned earlier. It is possible for the relative position of the bottom echelon to deteriorate, while the education levels for the upper echelon rises. So, an increase in educational levels for high income earners transcends into further income inequality among workers. Therefore, situations may arise where two workers with identical tangible assets are hired but ultimately come to possess different earnings as time goes on.<sup>7</sup>

From the above, the selected articles from the literature indicate the significant impact which assets have on income. This impact falls far short of expectations when considering the demand side of the labor market. Tangible assets which are selected by firms may play a significant role in the analysis of income distribution within the internal labor market. Using this idea, there are two points of entry into the labor market (the internal and external labor markets) in which these assets are used to screen, rank and place individuals. In the structuralist approach, this is an important idea in the determination of job opportunities for applicants (and therefore income distribution).

Both schools of thought have contributed extensively to an explanation of the relationship between income and tangible assets such as education. Traditional human capital theory's explanation of income levels places importance on assets such as education and productivity, when limited to an economic and social analysis. However, screening theorists show that firms may use these assets as a signaling device. Structuralists adhere to the signaling idea and question the significant impact that assets have on income levels when approached from traditional supply-side analysis. They formulate the idea of a dual market

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<sup>7</sup>Thurow (1975), pp.75-128

where signaling devices may play a role in influencing earnings.

## 2.2 Theories Of Labor Market Discrimination

Discrimination has propagated several theoretical and empirical analyses. However, all these theories have the same objective which is to provide a better explanation of why discrimination happens. We turn to the explanation of discrimination in the labor market and its effect on income and the economic theories associated with it. Theories based on personal prejudice, statistical prejudices and monopoly power have emerged to explain labor market discrimination and its influence on income.

Social scientists first analyze the topic of discrimination according to their respective area of study. Historically, many have argued that discrimination is really a sociological and psychological phenomenon. Usually, the phenomenon is seen to reflect prejudice and ignorance. Prejudice and ignorance are usually in the form of an individual's biased judgment against another person. Most often, inaccurate information forms the basis of the biased judgments made against others. As a result, it leads to a less than favorable behavior on the part of the individual. Therefore, the behavior towards the discriminated individual or group comes by way of a non-objective consideration of facts.<sup>8</sup>

However, the field of economics has also made contributions to the understanding of this phenomenon. Notably, Gary Becker (1971) provided an economic framework to analyze discrimination in the labor market. He concluded that individuals assume a "taste" for discrimination. The taste for discrimination incorporates both prejudice and ignorance. Individuals

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<sup>8</sup>Becker (1971), pp.13-15

with certain tastes for discrimination act as if they were forgoing income to avoid certain market transactions. Through prejudice and ignorance, labor market transactions are avoided by assuming a non-pecuniary cost.

Many economic theorists have applied the discrimination concept to explain why firms use individuals' tangible and intangible assets to allocate them into different areas of the labor market. As a result, several concepts of labor market discrimination have analytically been put forward. The explanation of these concepts will proceed according to the source of discrimination in the labor market.

The first source of market discrimination is personal prejudice. Personal prejudice pertains to employers', employees' and customers' dislikes. Usually, these dislikes are against certain individuals or groups with a particular asset such as ethnicity, gender and language. Statistical prejudice is the second source of market discrimination. Employers screen individuals or groups by means of established criteria to assess their potential productivity. Finally, monopoly power is the final source of labor market discrimination. A detailed explanation of each source of market discrimination is provided below. Whenever possible, examples are supplied.

Personal prejudice concerns discrimination found in the labor market, wherein employers, employees and consumer dislikes are based on assets such as race and sex. Most often, discriminating employers treat the group being discriminated against as people with less productive potential, even though they are equally productive. Therefore, the notion of an unequal distribution of potential productivity amongst the different groups justifies the discrimination by employers and gives the employer a reason to encourage this personal prejudice. Thus, an employer discriminating against a group discounts actual productivity. The following

example illustrates this point. We define MRP as the actual marginal revenue product of workers in a specific labor market and  $d$  as the proportion of devalued productivity by the employer. Also, market equilibrium is brought about by the following equation  $MRP=W_i$  where  $W_i$  is the wage rate for a given group (i). In this case, there are two groups (a) and (b). If group (a) is not discriminated against by the employer, then the market equilibrium condition for group (a) is:

$$MRP=W_a$$

If group b is discriminated against by the employer, then the market equilibrium condition for group b is:

$$MRP-d=W_b$$

$$MRP=W_b+d$$

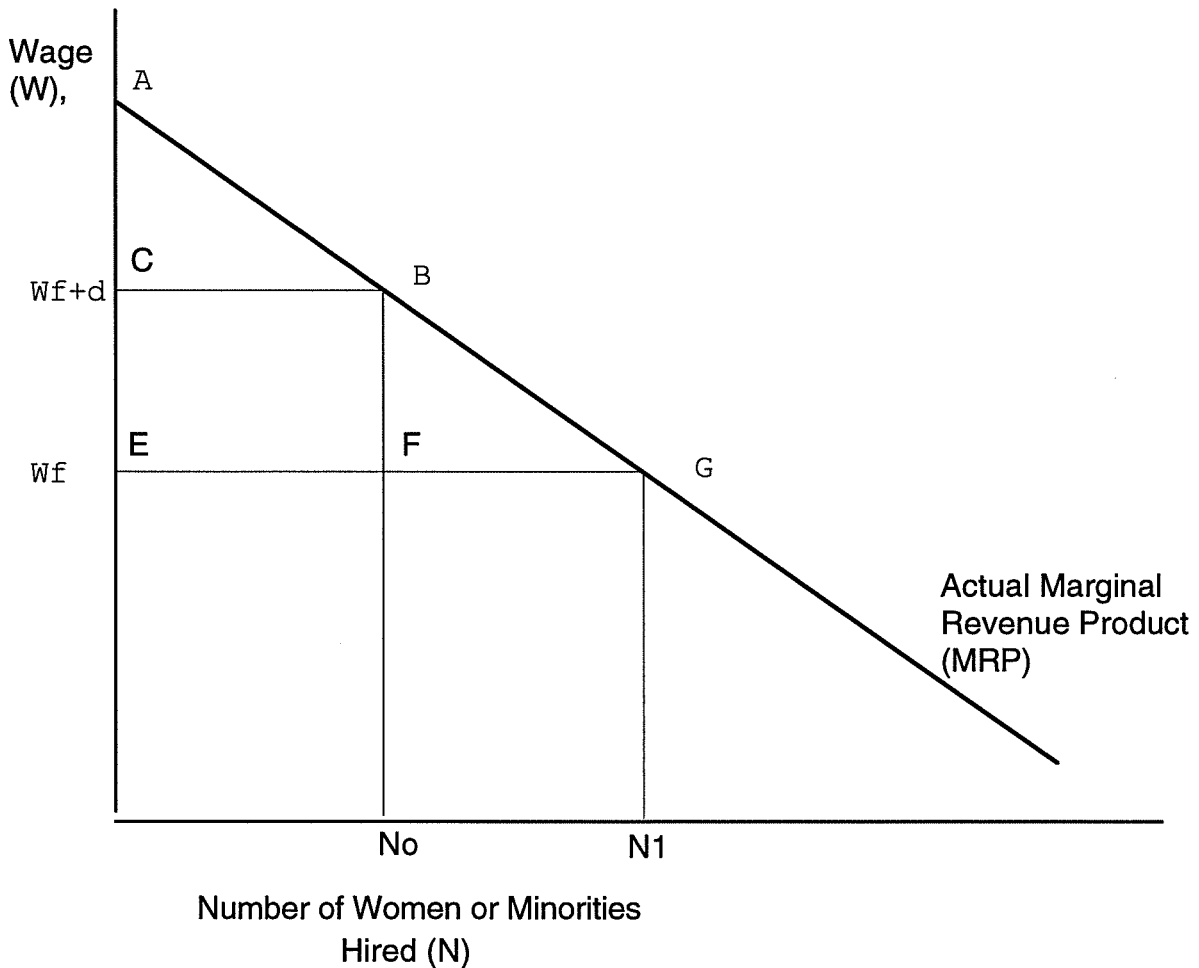
As a result, group b's wages are equal to their subjective value, even though actual marginal revenue productivity, in the example above, is equal for both groups. Therefore, according to Becker (1971) the equilibrium wage of the discriminated group turns out to be less than the wage of the non discriminated group.

$$W_a=W_b+d$$

$$W_b=W_a-d$$

The discriminated group must offer its services at a lower wage to compete for jobs. This is depicted graphically in Figure 1.

**Figure 1**  
**Equilibrium Wage and Employment Of Women Or Minorities**  
**In Firms That Discriminate**



The area below the actual MRP curve and above the wage represents the profits associated with each group to the employer. The activity of the discriminatory employer yields profits represented by the area AEFB. On the other hand, activities of the non-discriminatory employer will yield profits shown by the area AEG. Thus, discriminatory employers give up profits (area BFG) to discriminate. As well, employers who wish to hire anyone in the discriminated group (from our example above) will only hire individuals willing to work for the lower wage. As a result, the discriminating firm has given rise to a separate supply curve for the discriminated group. The existence of the separate supply curve has also

created a wage difference between discriminated and non-discriminated groups, with the discriminated group's wage lower than the non-discriminated wage.

Personal prejudice identifies consumers' preference to be served by certain individuals or groups as discriminatory and will have an effect on the worker's wage. Also, consumer preferences which are discriminatory in nature can often lead to segregated work places in jobs with higher public contact. For example, car sales representatives are usually males because consumers associate the knowledge of cars with males rather than females. So, a consumer's preference for male representatives heightens the wages of male representatives while at same time keeping female representative wages down. Therefore, the discrimination increases the earning potential of the non-discriminated group (males) at the expense of the discriminated (females). As well, the unequal earnings is promoted further by this false consumer stereotyping.

The last form of personal prejudice is employee discrimination. Employees may avoid situations in which they have to interact with other employees. The result of this leads to the segregation and possible discrimination by employees towards each other. A profit maximizing employer may deem employee discrimination necessary if he finds the act affects production in a positive way. In general, employee discrimination may be costly to the employer, but the abolition of employee discrimination by employers may entail a much higher cost.

The second kind of labor market discrimination is statistical discrimination. Using statistical information, employers try to figure out the differences in the potential productivity of prospective employees. Usually, the statistical information is asymmetric between the employer and employees. The only information available to the employer in most

cases is information loosely correlated with productivity. The information may include tangible assets such as education, experience and age. Therefore, statistical discrimination is the result of screening devices from which an employee's assets act as a predictor of the employee's potential productivity. Employers may use intangible assets along with tangible assets to predict employee potential productivity. An employer may use an individual's race along with their education attainment to place them.

An illustration of this type of discrimination is taken from Phelps (1972) in his article "The Statistical Theory Of Racism And Sexism". However, we shall adopt a modified version of Phelps' empirical model to illustrate statistical discrimination. An employer who is assessing individuals for a job may measure the performance of each applicant using some pre-specified test ( $Y_i$ ). The testing of these applicants may reveal an array of characteristics, possibly including race and sex, ( $q_i$ ) plus an error term ( $u_i$ ); namely:

$$Y_i = q_i + u_i$$

where  $u_i$  is normally distributed. If the hiring of a particular race or sex group is believed by the employer to be disadvantageous, then the employer can use this simple model to seek out these groups. Therefore, individuals in these groups, regardless of their actual productive potential, will be statistically discriminated against when applying for jobs.

The final source of labor market discrimination is monopoly power. Monopoly power is brought about when firms or different groups of workers collude to form a collective voice in the labor market. Often, this collusion may lead to a segmented labor force where discrimination can take place against designated individuals or groups. In our case, the notions of dual labor markets and collusive power are used to explain

labor market discrimination from monopoly power.

The dual labor market model of monopoly power divides the labor market into sectors. The two sectors are primary and secondary. Positions in the primary sector offer greater opportunities for advancement, a stable employment, good working conditions and high wages. The secondary sector has low paying jobs with little or no potential for educated individuals. Movements between these two sectors are difficult. There may be different factors determining entry into either. (The above notion is similar to the structuralist notion of the internal and external labor markets described above).

However, the formation of a group in the labor market brings about collusive powers. This power influences the hiring practice of the employer. Most often, the collusive power scrutinizes the hiring of certain groups. Thus, labor market discrimination serves the interests of an established collusive power.<sup>9</sup> For example, employees gain collusive powers when they form unions. Employers gain collusive power in the form of cartels. Both forms of collusive powers protect an established position by limiting the entry of a discriminated group into its core. However, an employer's intention for wanting collusive power for its employees will vary from that of an employee.

An employer that encourages employees to gain collusive powers may find it profitable to discriminate between a group of workers, if there is a difference in the marginal cost of this group of workers. The employer finds it profitable to replace workers from the more expensive group with workers from the inexpensive group. For example, an employer will pay women and men differently in a monopoly situation that benefits men. Women may receive less because the employer may consider them

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<sup>9</sup>Ehrenberg and Smith(1993), pp.399-426

immobile or unable to do the same job as men. The employer reduces costs by paying women less than men. Hence, the employer creates two types of supply for labor. The employer has created separate labor markets for men and women. The result of this scenario is an unequal distribution of wages between males and females.<sup>10</sup>

In summary, most theories dealing with labor market discrimination argue that it is the slow movement away from competitive to non-competitive labor markets, which gives rise to the existence of labor market discrimination. For example, the competition by different groups and individuals for employment drives discrimination with the help of competitive market forces such as the minimization of costs.<sup>11</sup> The formations of cartels by collusive firms and unions by collusive workers are examples of the varying degrees of discrimination in a non-competitive labor market. Several empirical studies illustrate the significance of labor market discrimination based on tangible assets of workers. However, the intangible assets of workers may play a significant role in influencing the income of workers.

### **2.3 Intangible Factors**

Researchers have known that intangible factors (such as ability, immigration status and gender) play a significant role in the determination of income. Often, the measurement of factors, such as ability, has posed a problem for theorists. However, many have developed ways to measure these factors. The most common way of measuring these factors is to allocate (redefine) another tangible asset to act as an indicator of the intangible asset. For the paper, the following intangible factors will be discussed: ability, immigration, socio-economic background, gender

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<sup>10</sup>Gunderson and Riddell (1993), pp.543-552

<sup>11</sup>ibid, p.427

discrimination, race and the multiple combinations of some of these assets.

The intangible factor of ability can be shown to affect the income distribution of an individual or group. However, in the literature, researchers take the intangible aspect of ability and use as proxy another tangible factor (such as the level of education). From this, the impact which it has on a person's earnings can be examined. The literature below illustrates these notions.

In 1988, Kodak and Ritzen concluded that the impact of scholastic ability (measured by students who exhibit and have high scholastic abilities in the Dutch education system) proved to be important for employment opportunities (via earnings).<sup>12</sup>

The redefinition of the intangible assets of ability to a tangible factor is not limited to research analysts. Employers use the approach to assess workers. This is illustrated by Grubb (1993). Grubb found that employers often use education and ability measures as an indication of an individual's potential. Employers use ability measures, such as vocational degrees and high school grades, as screens. A sample of salaried employed individuals observed that returns (earnings) from high grades were positive and significant.<sup>13</sup>

Griliches and Mason (1972) showed the impact that ability had on relative earnings, if used by firms along with education. In this case, a low ability level greatly affects income attained by an individual.<sup>14</sup> The firm's use of education and ability to screen applicants has a significant effect on the earning potential of the applicant.

Firms use the immigration status of applicants to assess their

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<sup>12</sup>Kodde and Ritzen (1988), pp.356-71

<sup>13</sup>Grubb (1993), pp.125-36

<sup>14</sup>Griliches and Mason (1972), pp.74-103

potential for a job opportunity. Anthony Richmond's (1974) study on immigration has suggested another avenue which impacts on earnings. Aspects Of The Absorption And Adaptation Of Immigrants explains how an influx of immigrants influences the income distribution levels in Canada. Canada experienced an increase in immigration between 1941-71. Thus, 3.5 million immigrants moved into urban centers, notably Toronto and Vancouver, because of the demand for skilled labor during that period. Immigrants with high levels of education experienced less difficulty than immigrants with relatively low educational levels. Richmond, in an earlier 1970 study, concluded that better educated immigrants are more likely to achieve higher incomes.<sup>15</sup> In the study, educational levels are used to assess individuals who immigrated to Toronto, Canada .

Chiswick and Miller (1992) showed that in Canada immigrant workers who are fluent in the dominant language have higher average earnings than those who are not fluent. In Canada, immigrants fluent in the dominant language averaged 49 percent higher earnings than those who are not. In the U.S., instead, immigrants who were proficient in the dominant language possessed a 16.9 percent higher average earnings than those who did not. Moreover, firms select immigrants who acquire the dominant language quickly.<sup>16</sup> In this case, educational attainment and language proficiency are used as indicators of the influence that immigration has on earnings and thus on income distribution.

Sewell and Hauser (1975) defined education as a measure of the quality of schooling which individuals receive. The choice of college or university selection and enrollment is a reflection of the socio-economic background of the parents. If the socioeconomic background of the

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<sup>15</sup>Richmond (1974), pp.1-53

<sup>16</sup>Chiswick and Miller (1992), pp.229-296

parents is in turn dependent upon their ethnic background, then ethnic origin is significant in the selection and enrollment of individuals to colleges and universities. They concluded that the socio-economic background of the parent has an impact on the education of the individual. This, in turn, had an impact on the income level of the individual. One explanation for this phenomenon is that educational institutions seek out specific types of students and effectively screen applicants for socio-economic status. Also, the authors stated that there was a need to examine the quality of schooling in order to understand the relationship that exists between the human capital theory, income levels, education and socioeconomic background.<sup>17</sup> Again, educational attainment is used as an indicator of a person's socio-economic background.

Further examination by Jencks in 1979 determined that family background (measured as race, place of birth, father's education and occupation, mother's education and occupation, number of siblings, parental income, ethnicity and religion) affected earnings among men with similar education and test scores. Family background explained 15 to 35 percent of the variance in twenty-five to sixty-four year old men's earnings in United States at the time.<sup>18</sup> Rasell and Appelbaum (1992) concluded that formal education has made contributions to the U.S. economic performance and growth. Workers are more skilled and can do their jobs more effectively. As a result, workers attain higher earnings. However, the higher earnings may reflect the influence of other factors, such as the ethnicity and socio-economic background of the individual (family background).<sup>19</sup>

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<sup>17</sup>Sewell and Hauser (1975), pp.1-237

<sup>18</sup>Jencks (1979), pp.10,50-89,217-18

<sup>19</sup>Rasell and Appelbaum (1992), pp.1-79

The impact of gender differences in the labor market is the single most popular analysis of labor market discrimination.<sup>20</sup> Generally, gender discrimination in the labor force is reflected in the earnings differentials between males and females. Kuhn (1987) concluded that other factors (non-statistical or unmeasurable evidence of discrimination) were more important in the determination of gender discrimination than they were in the determination of gender wage and earning differentials (statistical or measurable evidence of sex discrimination). When the conventional measure of sex discrimination (statistical evidence) is eliminated, the percentage of women who reported the discrimination fell from 15.4% to 10.2% in Canada at the time. The non statistical evidence of sex discrimination experienced by women varies with their observable characteristics such as age and their levels of education. In the study, young and well-educated women experienced more non-statistical discrimination. This group was more likely to report discrimination. Also, there appears to be an inverse relationship between conventional statistical measure of gender discrimination and the probability of reporting discrimination. Thus, workers who face high levels of statistical gender discrimination are unlikely to report this discrimination.<sup>21</sup>

Barbezat and Hughes (1990) argued that incorporating the quality of statistical information, the cost of the discrimination and the preferences of employers explains the negative correlation between the statistical measure of gender discrimination and not reporting the discrimination. Employers will gender discriminate when they have access to inaccurate employee information and/or when there is a low probability of reporting this information. As a result, there appears to be a relatively small

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<sup>20</sup>Gunderson and Riddell (1993), pp.543-585

<sup>21</sup>Peter Kuhn (1987), pp.567-583

number of reports with statistical gender discrimination.<sup>22</sup> The results of a study for a particular profession illustrate the existence of the hardships women must overcome in the labor market. Spurr (1990) concluded that law firms did not promote women in these firms because of their gender. They were about half as likely as men to be promoted. In the study, the estimates indicated no significant difference in productivity between men and women lawyers. However, the standards used to promote individuals in the law firms were more stringent for women than for men. As a result, there is a strong suggestion of discrimination.<sup>23</sup> Also, Gunderson and Riddell (1993) concluded that there appears to be a wage gap between males and females that acknowledges gender discrimination even after controlling for a large array of wage determining factors.<sup>24</sup>

A method of illustrating gender discrimination is the income differentials between males and females in a specific labor market. This method uses wage and income differentials amongst males and females as a better measure of sex discrimination without including other assets such as age, work experience and maternity leaves. There are those who place an importance on other asset differentials. They see it as an effective way of explaining sex discrimination. However, empirical research shows wage and earning differentials amongst individuals exists even when accessing other assets.

Racial discrimination in the labor market is illustrated by researchers by highlighting wage and income differentials amongst groups. Usually, labor market analysis of racial discrimination is achieved through the statistical measure of wage and income differentials amongst groups.

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<sup>22</sup>Debra A. Barbezat and James W. Hughes (1990), pp.277-297

<sup>23</sup>S.J. Spurr (1990), pp.406-417

<sup>24</sup>Morley Gunderson and W. Craig Riddell (1993), pp.555-575

Empirical evidence supports the existence of this differential.

Using 1973 National Academy of Science data, Jusenius and Scheffler (1981) concluded that at all stages of their careers, blacks who are academic economists earned substantially less than their white counterparts. Also, the effects on earnings of several factors (years of work experience, academic rank, primary work and degree) differed by race. Thus, race affected income even when taking other assets into account.<sup>25</sup>

In a 1983 study, Cordelia W. Reimers analyzed racial discrimination in the form of earning differentials. The study derived the following interesting results. First, the average wage of male minority groups in the U.S for 1975 was fifteen percent less than the earnings of white non-Hispanic males. Racial discrimination accounted for a six percent wage differential between Mexican males and white non-Hispanic males. Puerto Rican males acquired three percent less wages than white non-Hispanic males. Also, black and white non-Hispanic males had a fourteen percent wage differential that favored white non-Hispanic males.<sup>26</sup>

Nardinelli and Simon (1990) illustrated that even in a market as small as the collection of baseball cards, there appears to be evidence of racial discrimination. Specifically, collectors of baseball cards and memorabilia valued non-white hitters differently. Non-white hitters' cards sold for ten percent less than white hitters' cards. Amongst pitchers, non-white pitchers' cards sold for thirteen percent less than white pitchers' cards.<sup>27</sup>

The above literature identifies the various factors which firms may

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<sup>25</sup> Jusenius and Scheffler (1981), pp.88-96

<sup>26</sup> Cordelia W. Reimers (1983), pp.570-579

<sup>27</sup> C. Nardinelli and C. Simon (1990), pp.575-595

use to screen applicants. These studies identify the impact of the intangible assets on the earnings' levels of applicants and workers. However, firms may use more than one asset as a screen. Therefore, more than one factor can influence earning levels. A model of an earnings function by K.R. Shah is used to illustrate the effect on income if more than one of these factors are used by firms. K.R. Shah (1984) formulated a regression, where the determinants of earnings (income) during a screening process included nine to twelve variables. Some of the variables included were present age, education, occupational rank, experience, quality of education, post-school investment, starting earnings and nature of employment. Also, parental earning, education and occupational status showed their impact on earnings. The following is an illustration of the model:

$$Y_t = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}x_{10} + b_{11}x_{11}$$

where a=constant;  $b_i$ =coefficients;  $x_1$ =age;  $x_2$ =education;  $x_3$ =occupational rank;  $x_4$ =experience;  $x_5$ =quality of school;  $x_6$ =earnings of parents;  $x_7$ =education of parents;  $x_8$ =occupation of parents;  $x_9$ =post school investment;  $x_{10}$ =starting salary;  $x_{11}$ =nature of employment; t=time

(See K.R. Shah (1984).)

When education and earnings are considered, 18.2% of the variation in earnings from a sample of 231 respondents are explained by the education variable. Together, when other variables are added to the equation, approximately 38.5% of the variation in earnings from the same sample above are explained by screening variables such as the quality of schooling, post school investment and education of parents. The screening variables have a significant role in explaining the variations in earnings.<sup>28</sup>

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<sup>28</sup>Shah (1984), pp.73-100

In summary, the above-mentioned economic literature illustrates the extent to which intangible factors are used to form biased decisions by the participants of the labor market. Statistically, these biased decisions often influence the distribution of income or wage.

## **2.4 Policies To Combat Labor Market Discrimination**

Governmental regulatory policy attempts to eliminate employer, employee and customer decisions to discriminate. Regulatory policies, such as Affirmative Action or Employment and Income Equity, aim to bring about symmetry for everyone participating in the labor market by eliminating the biased decisions taken within that market. Thus, the elimination of these biased decisions would show individual and group income levels moving closer to parity in the labor market. This move towards parity may lead to the elimination of economic and social disparity found in society in general. The following is a brief description of some of the regulatory policies that aim to influence income distribution in the labor market.

The intervention of government regulators in the labor market to eliminate bias towards individuals and groups have brought about equal employment opportunity and employment equity policies. Equal employment opportunity policies require employers to give equivalent employment opportunities to visible minorities. In Canada, the federal government initiated the Mandatory Employment Equity Act following recommendations from a 1984 Royal Commission Report. However, many argued that this legislation lacks the strength to eliminate employment discrimination, although the act legislates the elimination of discrimination in the labor market. Also, many argue that it fails to force firms to carry out Affirmative Action programs. Thus, they recommend a stringent guideline comparable to that of Affirmative Action programs in the United

States.<sup>29</sup>

Phebe-Jane Poole illustrates the lack of success with this Act in the following manner. Poole concluded that little change occurred in Canada as a result of the Employment Equity Act in 1986. For example, women in the banking industry constitute the largest percentage of employees with the lowest income in almost ever major bank. Also, women were receiving fewer promotions than men.<sup>30</sup> Thus, the Employment Equity Act in Canada had yet to produce any results for females in the banking industry.

As well, critics of this program argue that the failure of such programs has more to do with their enforcement mechanism than the actual program itself. It is difficult to identify and penalize firms who do not comply with the legislation. Thus, the cost of implementing the program is high. Second, others argue that it is not equitable for firms to deny qualified majority group workers employment in their efforts to employ under-qualified minority workers. In this case, the hiring of unproductive workers is seen to bring about reverse discrimination against productive majority workers.

Finally, some economists argue that affirmative action programs could hurt the minority groups. The hiring of less qualified individuals to positions will only lead to dismissal in the future due to poor work performance. Thus, more effort should be made to allow minority groups to acquire the necessary qualifications and skills.

In Canada, all the provinces, the territories and the federal government have had equal pay laws since 1984. At the federal level this was fueled by the recommendations in Judge Rosalie Abella's Report on the Commission on Equality in Employment.

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<sup>29</sup> Jane Allan (1988), pp.1-22

<sup>30</sup> Phebe-Jane Poole (1990), pp.1-42

The impact of the Canadian federal government's employment equity policy has been studied in the following literature. Both positive and negative inferences can be found. Guppy (1989) stated that in an analysis of wage discrimination in the Canadian university system, there seems to be a slow decline in wage disparities during 1972/73 and 1985/86. Also, Fillmore (1990) found that there was an apparent trend towards a substantial reduction in the earnings gap between male and female workers. In the some occupations, both males and females were earning less than average income over time. As the earnings of male workers increased so did the percentage of male workers in these occupations. Female workers in male dominated occupations were few. However, there was a substantial wage gap between females and males in male dominated occupations. Therefore, the current legislation may have been ineffective in narrowing the wage gap and occupational segregation. The contradictory results obtained by the above-mentioned research is a prime illustration of the debate brought about in assessing the effectiveness of such anti-discriminatory policies.

Perhaps, the most controversial and widely known policy found in the United States is Affirmative Action. Title VII of the Civil Rights Act in 1964 paved the way for employment equity programs. By Executive Order 11246, government contractors were forbidden to discriminate. Thus, Affirmative Action plans were introduced in the mid-sixties by the Office of Federal Contract Compliance Programs agency in the midst of the growing Civil Rights movement.

The agency was established to monitor the hiring and promotional practices of firms supplying the federal government with goods and services. The agency required firms to consider the unequal opportunities given to women and visible minorities when formulating the availability of

women and minorities. In awarding federal government contracts, the government would consider carefully only firms that had taken into account the availability of women and of minority population in the immediate regional or national labor market. Thus, such a plan by the agency aimed to change the hiring and promotional practices of firms bidding for federal government contracts.<sup>31</sup>

In general, this policy gave visible minorities circumstantial first preference when an employment opportunity arose. The effectiveness of such policies has been subject to countless empirical analysis. Smith and Welch (1984) found that Affirmative Action policies have increased the wages of African-American males with high educational levels from 1967 to 1980.<sup>32</sup> Therefore, affirmative action policies have been beneficial to this group.

In 1989, Heckman and Payner used cross-sectional data on employment and wages by race and sex to explain employment and wage breakthrough in the manufacturing sector of South Carolina by blacks after Title VII (1964 Civil Rights Act) forbade employment discrimination. A regression analysis of black employment showed a movement in employment by blacks to the textile industry which was unrelated to conventional measures of output and growth in alternative opportunities. Thus, the shift of blacks to the textile industry presented strong evidence of government legislation integrating workers in a manufacturing industry. The success of that outcome was similar to that of black female workers in the closely related apparel industry.<sup>33</sup>

Wage discrimination legislation is attributed to those who believe

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<sup>31</sup> Ronald G. Ehrenberg and Robert S. Smith (1993), pp.433-442

<sup>34</sup> James P. Smith and Finis Welch (1984), pp.3230-38

<sup>33</sup> James Heckman and Brooks S. Payner (1989), pp.138-77

labor market discrimination is visible in the wage differentials of individual workers. The legislation pushes for equal pay for equal work or equal pay for comparable work. Equal pay policies would render employers to pay all individuals the same wages for doing the same job. Pay equity policies force employers to pay the comparable value of an employment opportunity to any individual without any discrimination of any sort. Wages for an employment opportunity is evaluated using common sets of criteria.

Such equity legislation goes as far back as the pre-1964 protective labor laws in the United States, whereby sex discrimination laws prohibited women from working at night and lifting heavy objects. The Equal Pay Act of 1963 overturned all other legislation, thus bringing about the elimination of separate pay scales for men and women.

In the U.S., the debate is heightened by its large diversity of personal and group opinions and experiences. The years without discrimination policies were unfair to individuals and groups of visible minorities. The present situation compared to that of the early years has seen significant changes towards equality. Thus, despite the criticisms, the results of employment equity policies in the U.S are illustrated by examples of employment integration and breakthroughs.

In summary, the effectiveness of these policies seems to come with time, proper implementation, and decisive enforcement mechanisms. Also, a more rigorous and simultaneous implementation of employment and pay equity policies will force discriminators to hire visible minorities and pay them equally when compared to others in the labor force. Finally, it seems that the biased attitudes of individuals who discriminate towards members of the visible minority are heightened in harsh economic periods. In recessionary times, frustration give way to biased attitudes and practices.

Thus, a prosperous economy will help the implementation and enforcement of these policies towards equitable income distribution and against discrimination.

However, there is still much work to be done in this area. Also, in relation to the previous paragraph, policies which aim to influence tangible or intangible factors thereby bringing about an effect on income have had difficulties because of the various concepts, definitions and technical approaches. Bakhtiari (1993) argues that there are many different conceptual, definition and technical problems with income distribution and inequality analysis. In addition to reforming formal education (education equity), there should be an expansion of training programs for new skills required by the new technology (improvements in essential signaling devices by applicants).

**"...training should be considered an important mechanism to increase workers' income, achieve fairness and equity in the labor market and efficiency and growth for the entire economy..."<sup>3 4</sup>**

From the above empirical analysis, the success of employment equity programs outweighs the failures. The extreme mechanisms and methods of implementing and enforcing these programs are justifiable in their attempt to eliminate a dilemma that has survived over time without any clear justification. Clearly, the lack of positive economic and social justification for this dilemma renders it obsolete. Therefore, the drive to eliminate employment discrimination is very similar and closely related to the elimination of wage discrimination.

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<sup>34</sup>Bakhtiari (1993), pp.210-211

### 3. CONCLUSION

The human capital-educational attainment relationship is the theoretical justification for individual performance in the labor market. However in economics, the theoretical foundation for human capital and income distribution adheres to two dominant schools of thought. Both schools confirm the relationship between human capital and income distribution. However, they have different opinions on the method of effectuating changes in income distribution. Traditional human capital theorists study the effect of tangible assets on income distribution. However, demand-side analysts, led by signaling theorists and followed by structuralists, have shown that firms use tangible and intangible assets to assess individuals to rank them. This use of these assets has an impact on income distribution. Thus, policies which aim to modify the structure of income distribution will be effective when they account for this demand-side behaviour.

However, discrimination in the labor market has consistently influenced the earnings of individuals and groups. In economics, the analysis of labor market discrimination was based on various theoretical explanations. Personal prejudice in the labor market shows that employers can treat groups or individuals (being discriminated against) as if they were less productive. Most of the time, employers maximize utility rather than profits, which could be fatal to the survival of the firm. Customers discriminate on the basis of taste, which may lead to segregation in the work place. Employees discriminate so that they can be in a better employment position to negotiate. However, this could lead to little or no interaction amongst employees.

Statistical discrimination allows employers to use information which

they can acquire to measure potential individual or group productivity. Usually, employers will use an individual's intangible asset to place them into a job, if information on the individual's tangible assets are exhausted.

Monopoly power arises due to a collusive power situation. This fosters labor market discrimination through differential wage offerings and dual labor markets. The formation of dual labor markets creates a situation where "the have nots" of the secondary sector achieve and acquire little in the labor market, whereas their counterparts in the primary labor market achieve and acquire a great deal. Therefore, collusive power forms a discriminatory situation where the powerful groups' interests are met at the expense of others.

Intangible assets are defined as assets which are sometimes difficult to measure and where the owner has no control on its outcome, such as ability and race. Researchers will need to examine studies and documents which outline income distribution based on intangible assets further, since interpretations of intangible assets used to assess income distribution are subjective. Thus, in this area one must keep in mind and understand the basis of the authors' or researchers' bias towards these intangible assets. In some cases, the research may reflect the author's or researcher's biased attitude towards the intangible asset and therefore the inclusion or exclusion may take away any creditability from the research.

Policies such as wage and employment equity by governments in the U.S and Canada have generated empirical research which evaluates the success and failure of these policies. Perhaps, the situation of labor market discrimination, like anything else, needs time to correct itself. It appears that the strong enforcement mechanisms when applied properly renders itself effective. However, it is important to access those who are greatly affected by the enforcement of these policies because all good intentions

○ have an ability to have bad consequences when left unchecked.

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