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IMPACT OF COMPARABLE WORTH ON THE ECONOMY WITH APPLICATION TO THE STONE AND CLAY MINING AND QUARRYING INDUSTRY

by

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Abstract

Comparable worth is a theory of labor value which replaces market pricing with a value based on the composition of the job or position. The goal of comparable worth supporters is the elimination of the wage gap between men's and women's earnings. This paper investigates the impact of comparable worth on the economy and on a sector of the economy, stone and clay mining and quarrying, under the assumption of national implementation of comparable worth. It further develops a model which is applicable, with little change, to other sectors of the economy. The model shows that while the stone and clay sector would experience little impact from comparable worth (0.259% increase in total costs), some sectors would experience significantly greater costs. Degree of impact of comparable worth varies widely, based on the composition of the sector. The national economy would experience an increase of 2.35% in total costs which translates into an approximate increase of $52.9 billion in 1984 dollars.

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CHAPTER 1

INTRODUCTION

1.1 Problem Definition

Comparable worth is a concept of labor value which presumes that the worth of a job is a function of the factors which compose the job. As such, it avoids the principles of supply and demand of labor in the input market. Although comparable worth has received a great deal of attention in the literature as a political, legal, and personnel issue, it has received little attention as an economic issue.

While the issue of comparable worth is worthy of the attention it receives from the legal, political, and personnel professions, it should be of equal interest to those in the field of economics. It is not important that the field of compensation, or salary administration, is normally found under the auspices of the human resources, or personnel, departments within organizational structures. The practice of compensation has its roots in economic principles including market wage setting and profit maximization for the firm. Comparable worth threatens the economic principles upon which wages are currently based.

Economics articles exist which are pertinent to the

comparable worth issue. The primary topics for these economics articles include the extent of and reason for the wage gap between men's and women's earnings. This paper takes a different approach. After reviewing the political, legal, and bargaining table events which have occurred, sufficient reason was found to believe that regardlesss of the economic consequences, comparable worth has the potential of becoming the basis for setting wage levels.

Specifically, the problem statement for this paper is to develop a model with which to analyze the impact of comparable worth on a sector of the economy under the assumption of national implementation of comparable worth. The problem was expanded to use data from the sectoral analysis to determine the impact on the whole economy.

The sector of the economy selected for use is the stone and clay mining and quarrying industry. While developing the model for this sector, and for the economy, would provide the solution to the problem, it was recognized that a model which was transportable to other sectors of the economy would be more useful than one not transportable. As a result the problem statement was refined to include the highest degree of transportablility to other sectors possible.

1.2 Scope and Limitations

This paper develops a method for determining the impact of comparable worth on the economy and on a particular sector of the economy and then applies this method to a particular sector--stone and clay mining and quarrying. The model developed is applicable, with little change, to other sectors of the economy.

Two parts of this paper serve as introductory material to the model. The first is a comparison of comparable worth and its to current compensation practices designed to familiarize the reader with the differences in procedure required under the comparable worth concept and to highlight the presumptions upon which the concept of comparable worth is based. The second part presents current issues surrounding comparable worth to familiarize the reader with the ways and means of comparable worth implementation.

It is not the intent of this paper to address the many existing labor theories or to try to justify the wage gap between men and women. These ideas have been explored in depth elsewhere and do not serve the purpose of this study. While these theories are invaluable in explaining the problems surrounding the economics of comparable worth, they are irrelevant when it comes to measuring the actual impact of comparable worth. Instead, economics articles concerning

the wage gap are presented for familiarity only.

CHAPTER 2

COMPARABLE WORTH AND COMPENSATION THEORY AND PRACTICE

2.1 Comparable Worth

Comparable worth is a construct of labor value which supposes that the worth of a job should be assigned based on the content of the job. Comparable worth is a theory which replaces market economics of supply and demand with a concept of job worth based on the function of the position without regard to market influences.

The goal of comparable worth advocates is the elimination of the wage gap between men's and women's earnings. The institution of comparable worth is made possible through the application of a traditional compensation method called point factor evaluation. This chapter provides the information necessary for a basic understanding of comparable worth, traditional compensation practices, and some of the economic difficulties inherent in comparable worth theory. Numerous publications exist for persons with a deeper interest in the subject than is presented here.

Comparable worth, in spite of being the called the personnel issue of the eighties by Eleanor Norton is generally misunderstood. Much confusion has resulted about

its relation to the equal pay for equal work doctrine. In spite of the dissimilarity of the two issues, the confusion has continued. The basic misunderstanding is that the two issues are the same. Nothing could be further from the truth. Earl Madsen, defense lawyer for Denver in Lemons v. City and County of Denver, summarizes the difference between the two issues in his contention that comparable worth is not an extension of the equal pay for equal work laws, rather "it is an excuse for it." (Earl Madsen, personal interview, October 10, 1984)

Comparable worth is an inflamatory issue. The Wall Street Journal (Farnquist, Armstrong, and Strausbaugh 1983) called it "removing the lid from Pandora's box." Phyllis Schlafly called comparable worth "a frontal attack on the free market system " (Bacas 1984).

In spite of the verbalized differences of opinion surrounding comparable worth, it is possible to provide a clear understanding of the issue. The Fair Employment Practice Manual (BNA 1981) provides two interpretations of comparable worth doctrine. The "pure" concept, the subject of this paper and the generally accepted concept, exists when workers of one sex, race, or ethnicity are paid less than workers in a totally different job category which presumably can be compared through the use of job evaluation

schemes. The second interpretation involves workers in closely related jobs. Finding a way to compare totally different jobs through the use of job evaluation schemes is paramount to the issue of comparable worth and will be discussed in detail later in this chapter.

DeForrest (1984) presents a clear definition of comparable worth in his statement that comparable worth is "a doctrine requiring equal pay for employees whose work is of comparable value even if their jobs are totally different from each other. Thus the concept of comparable worth goes far beyond the simple notion of equal pay for equal work."

Comparable worth, as indicated in the previous paragraphs, is not equal pay for equal work. Instead, comparable worth supposes that jobs of a completely different nature can be related in worth through some means other than the market. Inherent in the argument for comparable worth are certain presumptions which include the following:

1. The market is not a rational instrument for determining the value of labor.
2. There exists at least one job evaluation system which can accurately and objectively assess the value of a job or a group of jobs independent of the market.

3. All jobs within a firm, a region, a sector of the economy, or the economy in total can be assessed according to a single point factor system (in the absence of market relevance, it is necessary that the single system soon grow to encompass the entire economy).

4. The point factor system is more objective and less biased than market pricing.

The remainder of this chapter will address existing compensation systems and assumptions of comparable worth. The intent of these discussions is to investigate the basis of the above presumptions which are necessary arguments to the validation of comparable worth as a viable concept.

Equal pay for equal work is the law. Its validity and intent is unquestioned, that is, if two persons hold jobs whose work is substantially equal in terms of skill, effort, responsibility, and working conditions, then they shall be paid substantially the same. Comparable worth, on the other hand, is a concept which states that if two persons hold jobs which are of comparable worth based on some supposedly valid measuring system, then they should be paid the same regardless of the market value of the two positions. Equal work does not address the wage relationship between nurses and tree trimmers. Comparable worth does.

2.2 Compensation Practice

Compensation is not a new field. The decision of what to pay an employee certainly began when the first person went to work for another in order to earn his or her keep. Through the centuries, the field of compensation has changed dramatically many times. Ideas which have come and gone include slave labor, indentured service, and the military draft.

The objective of compensation systems is economic in nature. While numerous compensation systems exist, they are all designed to attract and retain the best qualified labor force at the most economical cost. To do this the systems must maintain both external equity with the marketplace and internal equity as perceived by the work force.

Increased industrialization and competition for skilled labor has caused improvement in compensation systems. Competition for skilled labor at economic costs forced the institution of market surveys with which to determine wage scales for the firm. In essence, these surveys improved the "perfect knowledge" requirement of a purely competitive environment and set the wage scales for the firm.

Internally, ranking systems emerged to reduce perceived inequities within the firm or organization. The ranking systems became known as job evaluations.

> Job evaluation is a system by which an organization ranks its jobs in order of their importance or worth. One of the first formal job evaluation systems was adopted by the U. S. Civil Service Commission in 1871. However, job evaluation systems were not popularized in the private sector until World War II. At that time, wages were frozen by the National War Labor Board, and the only increases being permitted were those necessary to correct demonstrated inequalities. Today, various kinds of job evaluation systems are widely used by industry. (Wegener 1980, 1)

Job evaluation is an evaluation of the duties and responsibilities of a position, not of the individual. The first step in the evaluation process is the preparation of a job description which defines these duties and responsibilities. From this description, the position is evaluated for future determination of a pay range. The pay range is a range of values within which the incumbent of the position will be paid. The exact wage of the individual within the range is dependent on the characteristics of the individual and pay practices within the organization. In economic terms, pay ranges are established based on the worth of the various inputs, in this case the labor input into a category of work, or occupation. The wage to that input can be compared to the product, or in this case labor input, differentiation.

It is generally accepted that there are four types of job evaluation systems (ACA 1980, 11-1.2). The first

three--whole job ranking, classification, and factor comparison--are ordinal in nature. While they vary slightly in their methods, they slot wage ranges within the organization based on other than a point-value system. The absence of cardinal values precludes their use in comparisons throughout an organization, leaving them useless in the assessment of comparable worth.

Point factor evaluation is the fourth system and assigns points to positions based on the content of the job. Point factor systems are essential to comparable worth. Without an assignment of cardinal values to jobs, the comparison of jobs of entirely different natures would be impossible. More information on point factor systems is contained in Section 2.3.

Standard compensation practice encourages the classification of jobs into job families (ACA 1980) to more closely align them with appropriate market values. This practice is an obvious contradiction of the goal of comparable worth, i.e., the comparison of totally dissimilar jobs throughout an organization. It is this difference in practice which provides the basis for one of the major controversies surrounding comparable worth.

Another major controversy between traditional compensation practice and the practice which comparable

worth would establish is the use of benchmarking to value a position. Benchmarking involves the use of easily identifiable jobs within an organization which can be compared with similar jobs valued in salary surveys. By comparing the benchmark positions within the organization to the survey data for the benchmark positions, a salary structure can be determined which is externally equitable. A typical salary structure consists of a number of salary grades within which the jobs of the organization will be categorized for wage level establishment. The non-benchmarked positions are simply slotted in the proper order in relation to the benchmarked positions. The problem with this practice, in the view of comparable worth supporters, is that the practice of benchmarking perpetuates previous market bias. It is therefore necessary to measure this market bias by some method and to eliminate it. Hence, again the point factor evaluation system is necessary to comparable worth for it is this method, comparable worth supporters contend, that allows measuring the market bias.

To summarize, traditional compensation practice uses the market as a basis for setting wage levels. This method employs benchmarking to match easily identifiable jobs with market data for the purpose of determining wages for like jobs. Internal equity is maintained by a system of ranking,

whether by cardinal or ordinal job evaluation systems. Point factor systems allow an added dimension of universal job comparison if it is assumed that the points awarded to jobs of an entirely different nature are relevant to one another.

Comparable worth proponents object to virtually every aspect of compensation practice. Separation of jobs into families for better relation to market data and the practice of benchmarking are condemned by comparable worth supporters as methods which perpetuate historic discrimination. Yet they do support the use of another compensation method, point factor job evaluation, but would use that method in a way which was never intended.

2.3 Point Factor Evaluation Systems

Point factor job evaluation systems are crucial to the implementation of comparable worth. This section discusses point factor systems and the various arguments pertaining to their proper use. Without a method to award points to a job, comparable worth is without an implementation means. The contention of comparable worth supporters is that the discrepancy between the wage to point ratio of men's and women's jobs is not only evidence of, but also the extent of, the existing wage gap and the wage gap is the extent of

the existing bias. The goal of comparable worth, the elimination of wage bias, is therefore attainable by the implementation of an organization-wide point factor system which rigidly awards dollars to point value.

Point factor systems are not new. The first point factor system was designed by Merrill R. Lott in the 1920s (ASPA 1981). One of the earlier systems still in use today is the Cooperative Wage Study, or CWS, which was implemented at the request of the National War Labor Board in 1944. Today this study encompasses most of the steel industry. Other nationally recognized point factor systems include the Hay Plan, the National Metal Trades Association Plan, and the National Electrical Manufacturers Association Plan. Each of these plans is a finely structured system awarding points to the various factors which may be applicable to their industry.

The four presumptions of Section 2.1 are necessary to a valid implementation of comparable worth. Of the four, three are dependent on the applicability and use of point factor systems. The following discussion outlines the general use of point factor systems and describes some of the limitations under which they operate. The two main points which are necessary to the comparable worth argument are the applicability of point factor systems to jobs of

entirely different characteristics or belonging to different job families and the objectivity or accuracy of point factor systems.

One of the nationally recognized point factor systems is the Hay Plan, developed and distributed by Hay Associates. Their position on the use of point factor systems across job families is as follows (Bellack 1984, 2):

> Over the years, as pay in the labor markets became evermore differentiated, we increasingly recommended that our larger and more diverse clients should consider multiple pay structures. But we recommended--invariably--that when a client adopted multiple pay structures, all jobs covered by a single, specific pay structure should be priced on that structure in relation to the relative job content as represented by evaluation points. Thus, the Hay position is, and always has been, that:
>
> . each pay structure should be positioned against the appropriate competitive labor market.
>
> . all jobs covered by a single pay structure should be priced in proportion to measured job size, and
>
> . variations in actual pay among job holders within or beyond the resultant pay range for jobs of a given size should be based only on truly business-relevant factors such as individual merit, qualifications, seniority, or individually negotiated differentials (e.g., an employee or a very high potential person gets a hard-to-refuse offer elsewhere.

The above reflects that even when using point factor systems, it is recommended that jobs be segregated into job

families. The recommendation by Hay Associates results from the need to recognize market differences for different job families. Within a family (which includes jobs of a similar nature), the point factor system is more relevant.

Wegener (1982) presented a summary of some point factor systems which sheds some light on the concept of transportability, the necessary ingredient to make comparable worth implementation a valid instrument. This report compared different systems as shown below:

Table 1

National Point Factor Systems

Factors	MIMA Office	Joint Union Mgmt Steel Ind.	Hay System
Skill	42.5%	24.4%	63.0%
Effort	3.0%	11.6%	Negligible
Responsibility	51.5%	52.3%	36.0%
Working Cond.	3.0%	11.6%	1.0%

MIMA pertains to clerical and supervisory jobs.
Steel Industry pertains to production, maintenance, and level clerical jobs.
Hay pertains to professional and management jobs.

Within MIMA alone, two separate evaluation schemes were summarized in the same work. These schemes included the following:

Table 2

MIMA Point Factor Weightings

Factors	Office Jobs	Shop Jobs
Skill	42.5%	50.0%
Effort	3.0%	15.0%
Responsibility	51.5%	20.0%
Working Cond.	3.0%	15.0%

These two examples indicate that common practice in the use of point factor evaluation is to use separate schemes for different job families because the rating, or weighting, for the various factors varies depending on the type of job or the job family. Additionally it is easily seen in this summary that there is little correlation in the factor weighting among these systems. Comparing the points of office jobs with those of production or clerical has little, if any, relevance. Yet that is exactly what comparable worth supporters attempt to do, that is, to correlate the ratings of one position with the points awarded to a completely dissimilar position. The validity of this procedure is certainly questionable.

Point factor systems must be objective and accurate if they are to be a truly valid measurement of wage bias. Evidence indicates that there is a high degree of

subjectivity in the use of point factor systems. On this subject, Neuse (1982) states:

> The problem, of course, is that job evaluation and wage determination is not value free "programmed decision making." Rather, the so-called scientific method of determining occupational worth and salaries only thinly masks an imperfect and subjective methodology characterized often by haphazard application and sometimes discriminatory intent.
>
> Several objections to job analysis-evaluation can be raised. First, many systems unfairly select and weight comensable factors. Bias results when evaluation plans fail to include comensable factors found predominantly in female jobs or when male job factors are weighted more heavily than female job factors.
>
> The bottom line then is that while any job evaluation plan can be objectively applied, the original choice of factors to be included may not be defensible: the selection of evaluation dimensions is invariably judgmental. Indeed, in most complex organizations, one cannot directly relate job factors to total organizational productivity or profitability.

Hay defines its evaluation scheme as being totally defensible in the values of the points assigned based on their system, yet recognizes the difficulties in defining job worth based on these points (Bellack 1984, 4):

> Job evaluation is not an absolute measurement process. Therefore if job X has as many points as job Y, it is because thoughtful and disciplined application of a system using appropriate comensable factors has concluded that it does. If the Hay Guide Chart-Profile Method were the measurement instrument involved, we would be willing to go into a court of law and explain our process and explain why the evaluators concluded

> that job X had as many points as job Y. But could we prove, to a legal certainty, that job X is inherently, absolutely, unequivocally worth as much as job Y? The answer is "No." We could only explain why, in the context of the organization and its value system, it was ranked the same.

The previous two references describe a major fallacy in the use of the point factor systems to replace the market as a value system. First, there is obvious subjectivity in the entire system beginning with the parameters which are used to establish the value factors. Second, though an organization may have established a credible ranking system for its jobs, it is not necessary that this constitutes a true measure of worth. Wegener (1980, 3) makes reference to a report of the National Research Council which indicated that in an analysis of six airframe plants, the potential variance in placement for any given job was plus or minus 2.75 grades. A reasonable wage difference between grades is 15%, which means that the difference expected due to evaluation systems can be as much as 31%.

Comparable worth supporters use point factor systems to provide evidence of the existence of a biased market. They apply point factor systems to jobs of entirely different content and to totally different job families. The above discussion indicates the questionable validity of their procedures. First, the point factor system was not

developed to apply across the board to an organization and this is not a common use of point factor systems in compensation practice. Second, it appears from the evidence that point factor systems are highly questionable in their accuracy and subjectivity.

In summary, the point factor system was designed to provide internal equity within organizations within the limits of differentiated labor markets. It is not an accurate measure of bias in the marketplace. It may well be that women's work is underpaid and that the market is biased. The method of determining the market bias, however, should not be point factor evaluation.

2.4 Problems with the Economics of Comparable Worth

In the previous two sections it was shown that the concept of comparable worth is inconsistent with traditional compensation theory. This section presents problems encountered by comparable worth from an economics viewpoint.

The assumption of comparable worth advocates is simply that the extent of the market bias is evidenced by and is equal to the earnings gap between men and women. This is an untrue supposition as is shown in the following paragraphs. Yet, it is this gap which has provided the basis for the remedies in all of the cases which have ended with a

comparable worth situation whether the settlement came as a result of legal, legislative, or negotiation activity. A review of empirically proven causes of the earnings gap provides the substantive evidence for this statement.

Causes of the earnings gap have been the subject of numerous economic studies, most notably, the human capitalists. Recognized economists contributing studies on the earnings gap include Corcoran and Duncan (1979), Mincer and Polachek (1974), and Polachek (1980). Roos (1981) provided the major work to the National Academy of Sciences report on the subject of comparable worth (NAS 1981). The human capitalist studies have examined the personal factors which contribute to the earnings gap, such as time in the work force, work force interruptions, education, time not worked, age, on the job training, and other relevant factors. The amount of the wage gap which is explainable varies widely depending on the study referenced, the interpretation of the study, and the level of the wage gap which is investigated, i.e., national wage gap, occupational wage gap, sectoral wage gap, etc. For example, Corcoran and Duncan explained 44% of the wage gap in their study at the national level, while Sanborn (1964) explained 71% of the wage gap at the detailed occupational classification level. Even Professor Blumrosen (1979), a leading supporter of

comparable worth, recognized that 50% to 80% of the gap is explainable.

The portion of the gap left open to question after elimination of the justifiable and identifiable factors is the residual (Nelson, Opton, and Wilson 1980, 252). This residual, being unexplainable by economic methods, causes large differences between comparable worth supporters and opponents. Supporters state that this residual, being unexplainable, must be attributable to wage bias. Opponents of comparable worth find only that the residual is unexplainable, which in no way indicates wage bias.

There are three main components of this residual (Nelson, Opton, and Wilson 1980, 252). These components are residual unmeasured ligitimate reasons for the wage discrepancy, the effect of discriminatory job assignment, and finally, some degree of wage discrimination. No economic studies have been able to define or prove the extent or existence of the wage bias.

The indication from human capitalist studies and other explanations of the wage gap is that a large portion of the wage gap is explainable. But, the goal of comparable worth is the elimination of the wage gap and the effect of comparable worth in the cases where it has been instituted has been to eliminate the entire wage gap. This is far in

excess of what might be considered a noble and achievable goal, the elimination of true wage bias.

To interject market theory into a discussion of comparable worth gives no clue to the meaning or existence of wage bias. It is irrelevant to this paper to examine the market for the existence of wage bias. It also provides no clues to comparable worth supporters since market value includes whatever distortions discrimination may cause (Blumrosen 1979, 441-443). It is worth mentioning, however, that it would seem that the market in its quest for efficiency would be unable to bear wage bias for any extended period of time.

Marginal productivity theory also provides no answers to the wage bias question. Marginal productivity theory is a necessary, but not sufficient, condition to the establishment of wages. It provides limits yet does not provide wage levels. From Nelson, Opton, and Wilson (1980, 257), "In spite of the intellectual elegance of marginal productivity theory, real-world wages are rarely, if ever, set by reference to marginal productivity analysis."

Crowding theory as it pertains to comparable worth seems to have received little attention, yet on the surface, crowding theory appears to provide some significant answers to the wage gap. A look at the following table indicates

the strong emergence of women into the labor force since 1945:

Table 3

Women in the Labor Force

YEAR	WOMEN IN THE LABOR FORCE (thousands)	% OF LABOR FORCE
1945	19,304	29.2
1950	18,412	28.8
1955	20,584	30.2
1960	23,272	32.3
1965	26,232	34.0
1970	31,560	36.7
1975	37,087	39.1
1979	43,094	41.2

A high proportion of women choose a relatively low number of occupations which would indicate the possibility of crowding in those jobs (NAS 1981, 27-32). If crowding does exist in the typically female occupations, the result is a lower wage rate, regardless of the number of points which may be assigned to the position from a point factor job evaluation. This is a subject worthy of in-depth research. It has, however, little bearing on the essence of this paper.

Selection of occupation is a final controversy in the comparable worth debate. Roos and Reskin (1984) present the issue of job selection in the contest of preemployment training, access and assignment to jobs, mobility, and

retention. Marini and Brinton present the heavy impact of society on job selection (1984). While job selection is an important issue of comparable worth, the real question is whether the economy is responsible for bearing the burden of paying for individual choice.

In summary, there seems to be no economic justification for the means used in the implementation of comparable worth. No one has yet identified the amount or even verified the existence of pure wage discrimination. To make the assumption that "evidence of segregated jobs justifies an inference of discrimination in compensation" (Blumrosen 1979, 465) is just not sound.

This chapter has presented numerous discrepancies in the compensation logic and the economic justification of comparable worth implementation. While literally hundreds of pages could be written on the economic and social reasons for the wage gap and on the irrationality of using point factor systems for identification of the wage gap, they would not be relevant to the subject of this paper, the impact of comparable worth. Comparable worth is not an economic issue. It is, instead, a political issue with economic implications. Economic justification has not stopped laws from being passed implementing comparable worth. At the courtroom and at the bargaining table,

comparable worth continues its invasion of the economy. The following section will address the general economic indicators of comparable worth implementation.

2.5 Economic Indications of Comparable Worth Impact

Little information is available which indicates the extent of the economic impact resulting from the few cases in which comparable worth has been implemented. This section discusses the limited data available and provides the economic basis for the expected economic impact of the implementation of comparable worth. This section serves as the basis for the projections used in the economic model of the impact of comparable worth which is presented in Chapter 4.

There are two ways to examine the potential impact of comparable worth. The first is to base the projected effects on the wage gap as is found by point factor evaluation systems. This method of analysis presents the impact from an implementation viewpoint, remembering that comparable worth is using the point factor system of evaluation as a tool of implementation. The second is to use the wage gap as found in contrasting wage rates based on percentage of women in an occupation. This method views comparable worth from a goal perspective since the goal of

comparable worth is elimination of the wage gap.

Unfortunately, the inconsistencies in point factor systems described earlier in this chapter coupled, with a lack of usable data with which to support a reasonable analysis, makes use of point factor systems in a broad analysis impossible. The limited usable information is presented here for information only and will not be used in subsequent analysis.

The best data available to indicate the potential impact of comparable worth using point factor system analysis are available from the AFSCME v. Washington case. The point factor evaluation conducted by Norman D. Willis and Associates which supported the wage bias claim by AFSCME indicated the following wage relationships (NAS 1981, 61):

Wages for Male Jobs = 1.87X + 473

Wages for Female Jobs = 1.40X + 393

where X is the point value of the position.

The general range of consideration which contains both male and female jobs is the range from 100 to 400 points. The achievement of female parity with male wages would require increases of 24% at the low end of this range (100 points) and 28% at the high end (400 points). For this analysis, jobs which were 70% or more female were considered to be typically female jobs and those which were 70% or more male

were considered to be typically male jobs.

The use of other methods of correcting the wage gap is better suited to determining the impact of comparable worth on the economy on a broader level. The dominant method which provides statistically significant data is the comparison of wage gap to the percentage of an occupation which is female. The use of this comparison provides not only the results of previous research into the earnings gap on a larger level than with the point factor system, but also allows the use of available data with which to build a useful model of the impact of comparable worth on the economy.

A study by Mellor (1984) summarizes the earnings difference present when comparing the earnings by occupation to the percentage of the occupation which is female. The correlation showed a statistically significant relationship between the share of women in an occupation and the earnings difference. The regression analyses from this study are shown below:

Wages for Male Jobs = 398.3 - 0.57P

Wages for Female Jobs = 333.9 - 1.28P

where P is the percent of women in an occupation.

This study was conducted by occupation at the national level (without regard to sector) and therefore has as its basis a

general earnings gap of 15% of male wages. This model showed an approximate 0.6% difference in relative earnings for each 5% change in percentage of female occupation of a position. It is this general correlation which allows the development of the model in Chapter 4.

Any discussion of the earnings gap between men and women must contain qualifiers pertaining to the level of outlook. If women's average wages are taken as a percentage of men's wages without regard to occupation or industry, the percentage falls generally within the range of 58% to 61%, a level which has remained fairly constant since 1960 (BLS 1982). In viewing pay differences within general categories of jobs or occupations, the earnings difference drops significantly. This comparison shows women's earnings to be approximately 85% to 88% of that of men. At the specific job level of comparison, the difference is slight with women earning from 89% to 103% of men's wages (BLS 1984). It is obviously necessary to use a level of comparison which supports the available data in order to have a reasonable projection of the impact of comparable worth.

Finally, it is necessary to determine a logical means of applying wage adjustment to female positions in order to achieve a credible impact projection resulting from comparable worth. Two studies (Pierson, Koziara, and

Johannesson 1983; Schwab and Wichern 1983) found similar results concerning the wage or criterion bias. In both of these studies, one of which concerned job bias and the other worker characteristics, the range of criterion bias (the bias which comparable worth seeks to remedy) was found to be in the range of 15% to 18%. Combining this with the general regression analyses previously noted comparing the percentage of females in an occupation to wage difference results in a wage correction of from 15% to 18%. If positions to be considered for wage adjustment included those with 70% or more female population (as they were in the AFSCME v. Washington analysis), the result would be a 0.6% wage increase for each 5% increase in female occupation over a reasonable range of what might be considered typically female. These numbers appear realistic in light of the regressions derived from percentage female in an occupation versus wage gap as well as from the wage differences studies immediately above. The combination of these two different types of analyses gives useable data for development of the model in Chapter 4.

In summary, neither traditional compensation practices nor economic theory seem to justify the means used in the implementation of comparable worth. The implementation of comparable worth in those cases resulting in a comparable

worth situation seem to overstate the adjustment necessary to eliminate pure wage bias. Comparable worth proponents select those compensation practices which support their goals while disregarding other necessary ingredients such as grouping of jobs by families. But this apparent inconsistency and irrationality has not stopped comparable worth from being legislated, bargained for, or even court-adopted as will be shown in the following chapter. As a result, the general economics which portray the best possible estimate of economic trends of comparable worth implementation have been investigated for use in the development of a model which shows the impact of comparable worth. The data from this chapter will be used in the development of the model in Chapter 4.

CHAPTER 3

COMPARABLE WORTH ISSUES

3.1 Legal Issues

The review of legal issues pertinent to the comparable worth movement will begin with a brief discussion of important legislation. Highlights of major court cases which have impacted the status of comparable worth as a legal issue will follow. The purpose of this section is to present isues which will allow the reader to understand that the implementation of comparable worth is not a cut and dried legislative, legal, or market issue. Rather, comparable worth is a complex issue involving all three. The means by which comparable worth comes into being will significantly change the way it impacts the economy.

The first notable regulatory events which established the principle of wage parity came as a result of the decisions of the National War Labor Board, the agency established to preclude rapid inflation due to wage increases during World War II. The charter of the NWLB was to approve wage rate increases only in the case of gross inequities or as necessary to assist the war effort. It was under this virtually informal board that several precedents were set which provide the bases for the comparable worth

movement. While many of the Board's interpretations and rulings have been misconstrued, there are certain facts which are evident from the rulings of the Board. These include the following:

-The Board supported the concept of equal pay for equal work.

-The Board would not rule on internal inequities between female-dominated jobs and male-dominated jobs; rather, these cases were returned to the involved parties for resolution.

-The Board would not rule on internal evaluations.

In essence, the rulings of the Board reflected an equal pay for equal work standard. The Board was the first executive agency to require that proper rates be set for all jobs based on a fair and objective evaluation of the duties and functions, irrespective of the sex of the workers assigned to them. It would not, however, rule on the portion of any inequity which was due to the sex of the incumbents. This is a ruling which is often misinterpreted by those who look to the Board as establishing a comparable worth standard. These decisions served as the basis for the legislative acts of the 1960s.

The Equal Pay Act of 1963, 29 U.S.C. Sec 206(d), is the first piece of major legislation passed with the specific

intent of eliminating sexually discriminating pay practices. It was passed as an amendment to the Fair Labor Standards Act and gave responsibility for enforcement of sexual discrimination to the Department of Labor. The Equal Pay Act prohibits an employer from discriminating "between employees on the basis of sex . . . for equal work on jobs the performance of which requires equal skill, effort, responsibility, and which are performed under similar working conditions." Four exceptions to the skill, effort, responsibility, and working conditions clause include allowable variations due to a seniority system, a merit system, a system which measures earnings or quality of production, or any factor other than sex. The Equal Pay Act is very straightforward in its language and intent. It specifically addresses the issue of equal pay for equal work.

Title VII of the Civil Rights Act of 1964, 42 U.S.C. Sec. 2000e et seq., followed soon after the Equal Pay Act. While it established the same guidelines as the Equal Pay Act, it has become clear that it muddied rather than clarified the issue of comparable worth. There are two generally worded sections of Title VII. Section 703 (a) (1) states that it is unlawful for an employer "to fail or refuse to hire or to discharge any individual, or otherwise

to discriminate against any individual with respect to his compensation, terms, conditions or privileges of employment because of such individual's . . . sex." Section 703 (a) (2) states that an employer cannot "limit, segregate, or classify his employees or applicants in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect his status as an employee because of such individual's . . . sex." Further portions of Title VII provide the same exemptions (seniority, merit, earnings measurement, and other) as those of the Equal Pay Act.

While it is apparent that Title VII allows a much looser interpretation than the Equal Pay Act, and that this interpretation makes a better target for comparable worth supporters, a sentence added just prior to the law's passage eliminated much of the controversy which might have been caused by the liberal wording of Title VII. This last sentence is called the Bennett Amendment and states (NAS 1981, 5; BNA 1981, 18):

> It shall not be an unlawful employment practice under this Title for any employer to differentiate upon the basis of sex in determining the amount of compensation paid or to be paid to employees of such employer if such differentiation is authorized by the provisions of . . . . the Fair Labor Standards Act of 1938, as amended.

It is the Bennett Amendment which ties Title VII to the

Equal Pay Act. This has been called the coextensive provision of Title VII with the Equal Pay Act. So while Title VII may appear to be less restrictive than the Equal Pay Act, the fact that they are coextensive is interpreted to mean that a Title VII plaintiff will be required to show violation of the Equal Pay Act in order to establish discrimination.

The complications surrounding the legal status of comparable worth have been increased through numerous government interpretations and through the involvement of more than one government agency. In an interpretive bulletin by the Department of Labor concerning the Equal Pay Act, the following paragraph is found (U. S. Department of Labor, 1971):

> What constitutes equal skill, equal effort, or equal responsibility cannot be precisely defined. In interpreting these key terms of the statute, the broad remedial purpose of the law must be taken into consideration. The terms are considered to be three separate tests, each of which must be met in order for the equal pay standard to apply. In applying these tests it should be kept in mind that "equal" does not mean "identical" (Daily Congressional Record, Senate, May 28, 1963, p. 9219). Insubstantial or minor differences in the degree or amount of skill, or effort, or responsibility required for the performance of jobs will not render the equal pay standard inapplicable.

While the involvement of the Department of Labor has been rather straightforward since the enactment of the Equal

Pay Act, other governmental agencies' involvement has not been so. In particular, the Equal Employment Opportunity Commission(given charter for equal pay intervention by Title VII), with more legal power than the Department of Labor, has caused confusion. It was the EEOC which commissioned the National Academy of Sciences (NAS) to conduct a study into the matter of comparable worth. In preliminary reports of the NAS, the study recommended that point factor systems developed should be on a common basis for an entire company. In other words, companies should use the same point factor system for all of their employees so that discriminatory practices might better be identified. In April 1977, the EEOC issued the following internal memorandum (Thomsen 1978):

> The proposed effort [to develop a nonbiased job evaluation procedure] can have a far-reaching effect. First, the application of this technique to a group of specific charges provides validated data and standards that may be applied on a companywide and industrywide basis. Second, nonbiased job evaluation techniques are applicable to charges involving race, and other bases, as well as sex. This type of job evaluation can provide the investigative tool necessary for the EEOC to approach the more subtle type of discrimination employers are consciously and unconsciously engaging in.

The final results of the study, called Women, Work, and Wages, were published in September, 1981. By this time the Reagan administration had sufficiently reorganized the EEOC

to lessen the impact of the document. The work was disclaimed as not representing the official position of the EEOC. Further, the EEOC has, since 1981, made an issue of shying away from resolution of sex-based, wage-bias claims. This matter is under ongoing investigation.

While the governmental agencies have been clumsy and ineffective in their ability to deal with comparable worth, the courts have been direct. In summary, the stance of the courts is that equal pay for equal work is the law of the land, comparable worth is not. The courts have made an issue of avoiding involvement in internal position evaluations. The rulings of the courts have been in keeping with the decisions of the National War Labor Board. The only deviation within the court rulings is in defining the limits bounding the interpretation of equal work. In no way does any court decision support the limits to which comparable worth supporters would have it stretch.

Woven throughout discussions of comparable worth court cases is the Bennett Amendment. While the objective of the plaintiffs has continuously been to get the cases tried under Title VII with its broader language, the courts have held that the Bennett Amendment applies and that to be tried under Title VII, the standards involved in the Equal Pay Act must apply. What one does find, however, is the possibility

of comparable court cases finally being heard due to "erosion" of the interpretation of equal pay for equal work.

While there exist numerous cases involving comparable worth doctrine prior to 1980, the outcome has been generally the same. Kandel (1981) summarizes:

> Prior to 1979, the few cases on point clearly held that an equal work basis was prerequisite to establishing a claim of sex-based wage discrimination under Title VII, primarily because Section 703(h) appeared to adopt the equal work standard of the EPA, Angelo v. Bacharach Instrument Co . . . 1976; sex based claims under Title VII were limited to those reachable by the EPA, IUE v. Washington Electric Corp . . . 1977; and Gunther v. County of Washington . . . 1976; and Title VII did not support a comparable worth claim, Christensen v. Iowa . . . 1977 (supporting lawfulness of market based wage scales favoring male dominated positions over female clerical jobs).

Since 1979, a few court cases have been decided which have had an impact on the interpretation of Title VII and the narrowness of the Equal Pay Act. Of these, the first was Gunther v. County of Washington.

To clarify the case, Gunther was neither an equal pay for equal work case nor a comparable worth case. The county paid female prison guards at 70% of the rate that it paid the male prison guards <u>even though the county had evaluated the worth of the female guards at 95% of the worth of the male guards</u>. The Supreme Court ruled on the case and held that the Bennett Amendment held over only the Equal Pay

Act's defenses. In other words, "Title VII's prohibition of sex-based wage discrimination was found not to be limited to claims of unequal pay for equal work" (BNA 1984, 14). Gunther set the standard for the hearing of "intentional discrimination" cases whereby the pay inequity is recognized but the employer has failed to correct the situation. It appears broader in scope than previous rulings, but it should be noted that the court did not intervene in the evaluation of the jobs themselves, a key ingredient to comparable worth proponents.

The importance of Gunther may be in the failure of the court to define the scope of Title VII. In failing to do so, it merely opened the doors for further erosion of the principles of the Equal Pay Act and encouraged comparable worth advocates to try to impose Title VII in nontraditional situations.

The case of IUE v. Westinghouse Electric Corp. in 1981 proved significant to comparable worth advocates only because the case was remanded to the lower court from the Third Circuit Court of Appeals. The claim was brought by the union that female wages were intentionally kept lower than those of males because of sex. The point rating scheme of the company indicated a higher wage scale than was being received by the persons in female dominated positions. The

lower court did reject the claim by stating that the union's case could only be proved through comparable worth, an approach barred by the Bennett Amendment.

Perhaps in Lemons v. City and County of Denver is found the strongest language opposing the concept of comparable worth. Judge Winner said, "I interject that plaintiff's theory ignores economic realities . . . . The overall result here, in my judgment, would be absolute chaos in the economy of the United States" (Lemons v. City and County of Denver 1978).

Cases between 1981 and 1983 helped define the role that the courts would take in the issue of comparable worth. In general, the rulings indicate that comparable worth is not a valid concept under Title VII due in part to the restrictions imposed by the Bennett Amendment. The limits of the equal pay for equal work laws can be extended to those jobs which are reasonably equal. The two issues left not fully defined are those of disparate impact and the ranges of intention to discriminate. "Disparate impact" is the issue of whether an employer can be held liable for discrimination when he had no intent to discriminate, but the effects of his practices has had an adverse impact on members of a specific group.

The intention to discriminate issue potentially has a

greater significance to the comparable worth issue. Intentional discrimination occurs when an employer conducts a salary evaluation which shows that female dominated positions are discriminatorily paid lower than male positions and then does not act upon this knowledge. Perhaps the most publicized of the "comparable worth" cases, AFSCME v. State of Washington, used this as a basis.

In the case of AFSCME v. Washington, the state of Washington conducted numerous studies beginning as early as 1972 to bring itself into compliance with both the Equal Pay Act and Title VII. During the conduct of these studies, the Department of Personnel found that positions held predominantly by women were paid lower than equally valued positions held by men. A point factor system was the basis for this comparison. At the same time, AFSCME began pressuring the governor over what it considered a wage bias against women. The Department of Personnel went so far as to submit budgets to the state legislature under both the old and the "new" systems. The legislature would approve funding only under the old system until 1983, at which time it began allocating funds based on a graduated schedule to achieve wage parity. The state had held itself liable by admitting to sex discrimination in wages and then failing to act on it. In the decision of the court, the fact that the

state admitted to wage disparities and then did not act upon them constituted intentional discrimination. It was ordered that the state make immediate adjustment. The ruling was not a ruling for comparable worth. The decision was on the basis of failure to pay, an act of intentional discrimination. This case is under appeal.

Still at issue is the limit to which intentional discrimination can be carried. Comparable worth advocates will undoubtedly test this in the near future. The real question is whether intentional discrimination can exist if the employer fails to conduct an internal job evaluation to identify discriminatory practices.

To summarize the legal issues of comparable worth, the Equal Pay Act, based on the precedents established by the National War Labor Board, is the law of the land. Title VII can apply, but its applicability has been limited to intentional discrimination cases. Comparable worth is a national issue as evidenced by its inclusion in the 1984 Democratic party platform. It is not expected that there will be any national legislation on the issue before 1988.

Within the government ranks, the situation is different. At the federal level, H.R.5680, the Pay Equity and Management Act, was approved by the House of Representatives by a vote of 413 to 6. This act would

require "an outside consultant to conduct a study of the pay and job classifications of the 2.1 million Federal Government workers to see if the system discriminates against women." (BNA 1984, 47) The bill was introduced by Representative Mary Rose Oakar and is strongly supported by comparable worth advocates including Senator Gary Hart, Walter Mondale, and Jesse Jackson. In addition to this legislation, seven other pieces of comparable worth legislation have been introduced and are at various stages of discussion.

At the state level, 14 states have comparable worth laws in effect. All of these laws apply to state employees and most of them also pertain to the private sector to some extent. As an example, the laws in Kentucky pertain to all employers of eight or more employees while in Georgia, the law applies to employers of 10 or more. Five states have passed measures which recognize the pay inequities between male and female jobs. Six states have approved or passed resolutions for studies of the male-female pay equity situation. Numerous other states, including Colorado, have proposed, but not passed, comparable worth statutes.

The activity in the legislatures for comparable worth seems to be increasing. There are a number of reasons for this. It is certain that comparable worth is little

understood by the public. On the surface, comparable worth is a desirable basis for setting wage scales. The real question of comparable worth is in the means used to achieve wage parity. Is it the responsibility of the government or the free market system to determine wages? Is it the responsibility of government to evaluate completely unrelated jobs and to determine their worth to society? In essence, is it the responsibility of government to set prices for commodities and inputs in the market place?

All of the above questions are answered by the courts in their decisions regarding comparable worth. To date they have unequivocally rejected the concept. Erosion of these decisions is certainly possible as is further legislation requiring that a job be evaluated not by the market, but rather by some formula which bases worth on the makeup of the position.

3.2 Union Isssues

The theme of this paper so far has been the question of comparable worth versus the marketplace. In the absence of enforceable comparable worth legislation, the achievement of comparable worth depends on a marketplace which is often slow to change. The achievement of comparable worth goals may well be hastened by the ability of supportive women's

groups to present a united effort to force market change. In response to this need, collective bargaining takes a unique and important place in the comparable worth discussion.

Two historic trends indicate the direction the unions are taking in response to the comparable worth movement. Until recently, most unions have been remiss in their bargaining efforts for women. While neither the Railway Labor Act nor the National Labor Relations Act state implicitly that unions must represent their members with fairness, numerous court cases have established the duty of fair representation to be legally binding on unions. Among these cases are Steel v. Louisville & Nashville Railroad Co. (1944), Ford Motor Company v. Huffman (1953), and Vaca v. Sipes (1967), the last of which passed jurisdiction for fair representation to the National Labor Relations Board. The responsibility of the unions to fairly represent women has been established in more recent cases including 300 South Grand Co., 257 NLRB 178 (1981) and a court case, Farmer v. ARA Services, Inc. (1981). In both it was held that the union had violated the duty of fair representation by either failing to adequately protect its women members or by perpetuating discrimination of the employer by ratifying discriminatory contracts.

Whether the rulings concerning the responsibilities of the unions to bargain for their women members had an impact on the unions' desire for involvement in the comparable worth issue is questionable. The rulings do require the unions to be involved in the equitable bargaining for women's wages. The lucrative membership available within the ranks of female workers serves as enough incentive, one would think, to cause the unions to become involved in the comparable worth cause.

As stated by Volz and Breitenbeck (1982, 43):

> Why has the duty of fair representation not been used more widely by women in wage and job inequity situations? For one thing, only 16% of the working women are unionized . . . . Thus, through the duty of fair representation, women can harness the political, legal, and economic strength of unions to achieve goals unobtainable through the legislature. The duty also invites unions to take a wider social role.

It is apparent that the unions, tasked with the legal responsibility to represent women members, could have a significant impact on the movement. Courts have shown an impatience with unions who have neglected their women members in wage parity situations (Volz and Breitenbeck 1982, 44).

Reflecting the recognition of comparable worth as a means of achieving unions' desires for women membership, unions have become very active in the cause. The impact of

this involvement is felt not only in the courts, but also in negotiations. In May 1981, the American Federation of State, County, and Municipal Employees (AFSCME) voted to strike against the City of San Jose, California, over the issue of comparable worth. A consulting firm had shown that based on a point factor evaluation system, women's positions were underpaid in relation to men's positions. The city agreed to close the gap over a three year period, but this alternative was unacceptable to AFSCME. The strike occurred in July and a settlement was reached a few weeks later after the city agreed to close the gap in two years. The San Jose experience has received much attention, particularly in its achievement of comparable worth objectives. Brinks (1981) stated, however, "Virtually ignored in the entire debate is the fact that competitive market rates for the female dominated positions are in almost all cases 15-20% below the male dominated job rates." The indication from this is that tax dollars are now overspent in San Jose due to overpayment of wages for select positions in comparison to the marketplace. The case does show that comparable worth can be achieved through union involvement rather through than legislation or court involvement.

Union involvement in comparable worth is natural. Involvement can help the unions to meet their goals of

survival and growth; nonetheless, there is much more at stake than just the entrance of women into the union ranks. At the basic fiber of the comparable worth issue is the case for a single point factor job evaluation system through which all of the positions in a firm or agency are rated thus interrelated. If this is the case, and if a union is the bargaining agent for a select population of the firm, does this not make the union the bargaining agent for all of the jobs in the entity? To carry this one step further, the implication exists that unions will be bargaining for the wages of the entire firm or agency since all of the jobs are related.

In summary, with legislative and legal progress in the area of comparable worth occurring slowly, the union becomes an ideal vehicle for changing the market. Union involvement in the issue also coincides with the goals of the union, i.e., survival and growth.

To date the private sector has been virtually untouched by unions representing comparable worth. The unions have, however, made significant strides in the public sector as exemplified by the actions of AFSCME in both the San Jose and Washington cases. It is easy to believe that this type of effective action will lead to inroads in the private sector. Some unions have made apparent their objectives in

this area. Statements include (BNA 1984, 73-78):

> UAW's Technical, Office, and Professional Advisory Council- In February, 1982, adopted a resolution which accepted "comparable pay for work of comparable value" as a bargaining tool.
>
> Communications Workers of America- In March, 1984, union president Glenn Watts called on the union to aggressively push for comparable worth.
>
> National Education Asociation- Is undertaking at least three comparable worth studies. Has a stated position of "all workers should be paid on the basis of the requirements, skills, and worth of their jobs."
>
> United Electrical, Radio, and Machine Workers of America- Adopted in September, 1983, a resolution that endorses the struggle to win equal pay for work of comparable value.
>
> United Food and Commercial Workers Union- In 1983 ratified a resolution stating that it was committed toward the attainment of equal pay for jobs of comparable value through the process of collective bargaining.
>
> The Newspaper Guild- Locals are required to propose that there shall be equal pay for equal work or work of equal value prior to entering into negotiations.
>
> American Nurses Association- In 1982, adopted a resolution to "challenge reliance upon current rates of compensation as a validating factor in determining salary structures because current rates are themselves a result of past economic discrimination."
>
> Service Employees International Union- Has urged reconsideration of past opposition to job evaluations because they now see them as a tool to address pay equity.

With this apparent interest by so many of the country's unions, it may be expected that the issue of comparable

worth will be a major bargaining tool of the unions in the remainder of the 1980's. As of this writing, the recent weak economy has put a damper on effective union bargaining. The major exception has been in the public sector, and coincidentally, this is the area where the comparable worth activity has been centered.

3.3 Future of Comparable Worth

Any predictions regarding the future of comparable worth are purely speculative. Arguments for and against the movement are so diametrically opposed that it would be difficult for either side to completely accomplish their goals. One thing is certain--comparable worth is not just going to go away. This section summarizes expected comparable worth activities.

Summarizing the legal framework for comparable worth, no court action has directly supported the legality of comparable worth. As of March 1985, the courts do not consider comparable worth to be the law under the perusal of either Title VII or the Equal Pay Act.

In Congress, comparable worth is an active issue. As stated earlier, several bills are pending; however, the primary support for the issue is from the Democratic party. The present Republican administration will probably put a

damper on comparable worth activities until at least 1988.

At the state, level the situation is somewhat different. According to Cathie A. Shattuck, past vice-chairman of the EEOC, 23 states proposed comparable worth legislation during 1984. In a speech delivered at the annual meeting of the Mountain States Employers on January 29, 1985, she stated that comparable worth was an "administrative nightmare," and called it a "tool to attract more women to union membership." She expects that during 1985, most of the comparable worth legislative activity will be at the state level. At this same meeting, Bob Arnold, Labor Editor of Newsweek magazine said that he expected unions to continue to use comparable worth as a bargaining tool, particularly in the public sector.

The unions can be expected to play a major role in the future of comparable worth. Comparable worth serves as a rallying point for women members and provides for potential membership gains in a faltering union environment. A recent survey of persons with some union involvement indicated that 48% of the respondents expected some form of national legislation to raise the earning level of women over the next few years. They expected such a movement to be led by women's groups, unions, and the federal government, in that order. Unions were seen as having the highest political

clout of the three groups (BNA 1984, 110).

Business groups appear to be taking a wait-and-see attitude. There is a strong belief that if progress continues to be made in the public sector, then the private sector will be forced to follow suit. Whether this will come about as a result of the higher market pricing structure for typically female jobs or as a result of legislation is not clear.

In contradiction to what might be expected as a result of the decision in the AFSCME v. Washington case, many private sector employers and public agencies are continuing to develop point-factor system compensation studies to determine their compliance with pay equity. In light of the fact that the development of such a system was the only reason that the state of Washington was found guilty of "failure to pay," development of such systems seems unreasonable. A number of consultants are now advertising point factor systems designed to protect the firm (Wegener, telephone interview, March 4, 1985). Any compensation system which assigns points to jobs must be held suspect at this time.

Other views point out the diverse expectations with regard to comparable worth. NOW president Judy Goldsmith contends that the AFSCME v. Washington case made pay equity

the law, though the court emphatically denied this. Her question is not when comparable worth legislation will be passed, but rather when will the law be enforced? Ronald Green, partner in the law firm Epstein, Barsody, & Green, states "The future of the comparable worth/pay equity issue will be more significantly controlled by bargaining table developments than litigation and, in the public sector, by legislation as well." (BNA 1984, 89)

The list of public statements is extensive but can be divided into three basic stances. First, some feel that the legislation does exist and what is needed is enforcement. Second, many feel that legislation will not be created specifically addressing comparable worth in the private sector and that gains will come through negotiations and market place movement. A third group feels that comparable worth is not even an addressable subject, that marketplace economics should not be tampered with, and that no point factor system can be devised which will come close to the market in establishing wage equity.

It is apparent that the subject will not disappear. Instead the question is what form it will take when it enters the economy as a viable issue. At worst case it will lead to national wage setting; at best it will work within the framework of market economics.

CHAPTER 4

ECONOMIC IMPACT OF COMPARABLE WORTH

4.1 Model Introduction

This chapter presents an economic model which analyzes the impact of comparable worth on the economy in general and on the stone and clay mining and quarrying sector in particular. National implementation of comparable worth has far reaching consequences. Its impact is not limited to a specific sector of the economy or to a single product or economic input. Instead, in varying degrees it impacts the entire labor market and each of the sectors of the economy.

To present a reasonable outlook of the impact of comparable worth, it is necessary to treat the analysis in two parts. The first, called the "primary impact," consists of the relatively predictable and immediate impact of comparable worth on the economy. The primary impact is presented in the form of a quantitative model. The second part is called "secondary impact" and is highly speculative in nature. It consists of the possible interactions within the economy resulting from the primary impact. Secondary impact will be discussed in the final section of this chapter.

4.2 Primary Impact

The complexity of comparable worth is not limited to the legal, political, and bargaining table questions presented earlier in this paper. The potential economic impact touches all sectors of the economy and affects the entire labor force. To properly examine the far-reaching economic effects of the concept and its implementation, research can not start and end within any one sector of the economy. When examining the effects of comparable worth on a single sector of the economy, it is not enough to examine the labor structure only within that sector. The economic impact on a single sector is a result of the cumulative effects of the changed economics in virtually all sectors of the economy.

Input/output (I/O) techniques, as developed by Wassily Leontief (1951), are useful in viewing economic interaction between the various sectors of the economy. I/O therefore becomes a useful tool for examining the interactions which would occur in the event of national implementation of comparable worth. I/O techniques are used in the economic model developed in this research and contained in Appendix A.

The specific question answered by Wassily Leontief in his input/output analysis is "What level of output should

each of the n industries in an economy produce, in order so that it will just be sufficient to satisfy the total demand for the product?" (Chiang 1967). The production of any commodity depends on certain input levels from each of the sectors. Algebraically, the output of the Jth sector of the economy depends on the inputs of various sectors, a_{1j} to a_{nj} where j is called the producing, or column, industry and i denotes the supplying, or row, industry. In a closed economy, one in which all of the goods produced by industries are consumed by other industries, the output of the j industry, x_j, must equal the total input from all of the supplier, or row, industries. In algebraic form this means

$$X = \sum_{i=1}^{n} a_{ij}$$

If the total output of a sector is set equal to a particular value (for example, 1.00 or 100 or 1000), then the inputs of all of the sectors to that industry can be expressed as a portion or fraction of that value. As an example, if industry J produces $2000 worth of output and is supplied by industry I with $400 worth of goods, it is possible to reduce each of these values and to say that the output of industry J = 1.00 and that a_{IJ} = 0.20. The value 0.20, or a_{ij} is called the input/output coefficient.

Obviously the U. S. economy is not a closed economy. Therefore the sum of the input/output coefficients for all of the suppliers to any column industry does not equal the output of the column industry. The difference between the two values is the value added by the industry in its processes of which one component is labor. Since labor also has a value which can be related to the total output of the producing industry, it too can be represented by a coefficient similar to the input/output coefficients of the supplier industries.

In the context of comparable worth, it is possible to use these input/output coefficients to determine what impact labor changes in any sector or combination of sectors will have on another sector. An example of a hypothetical two industry model with value added by a labor force is provided for clarity. In this model, the I/O coefficient will be represented by the notation a_{ij} where i denotes the row and j denotes the column.

a_{11}	= .25	a_{12} = .40
a_{21}	= .40	a_{22} = .45
labor	= .35	= .15
TOTAL	=1.00	=1.00

This brief model uses a total for the input/output coefficients of 1.00. Industry 1 buys from itself 25% of

its total output, it is supplied by industry 2 with goods equal to 40% of its output, and it has a value added by labor equal to 35% of its output. The external demand columns of the model have been deleted since they have no bearing on the analysis. The values for industry 2 are 40% of its output value is supplied by industry 1, 45% is purchased by itself, and 15% is the value added by labor.

Now a 20% increase in the cost of labor for the entire economy can be applied to this model. Only the detail of the calculations for industry 1 will be shown as an example. From the results of the calculation, it would appear that the I/O coefficients have changed; however, this is not the case. The results of the calculations use the following logic. If it is assumed that the output of industry J is $1000 based on input from industry I of $350, then any increase in the cost of doing business by industry I will be passed on to the industries which are supplied by industry I, depending on the amount supplied to each producing industry. This type of calculation makes working with percentage increases easy. Assuming that industry I has a labor increase of 10%, then the amount of that increase which would impact industry J would be equal to the labor increase times the percentage of labor costs in industry I times the original value of goods sold to industry J. If

this number is added to the original value of good provided from industry I to industry J, the result is a new input "cost" to industry J. Using the above model, this means

$$a_{11} = .35 \times .2 \times .25 + .25 = .2675$$
$$a_{21} = .15 \times .2 \times .40 + .40 = .4120$$
$$\text{labor} = .20 \times .35 + .35 = .4200$$

The revised total of the goods and added value for industry J is 1.0995, which means that a 20% increase in labor throughout the economy has resulted in a 9.95% increase in the total costs of industry J. Industry 2, using the same methodology, has a resultant increase in total costs of 7.15%.

This same analysis technique may be applied to the implementation of comparable worth. The degree of complexity is increased since each of the sectors in the economy will experience a different percentage of labor increase depending on the population of the typically female occupations in the sector. It can be readily seen that the industries will then be dependent not only on the supply of inputs from each of the other sectors and the percentage of labor in those sectors, but also upon the population in the typically female positions in each sector.

It was mentioned earlier in this section that the external demand columns of the I/O model had no bearing on

the development of the model. This statement is only partially true. While changes in the external demands will certainly occur as a result of the implementation of comparable worth, the extent of these changes is beyond the scope of this paper. This subject will be briefly addressed in the section concerning secondary impacts of the implementation of comparable worth.

The use of input/output techniques to determine the impact of comparable worth on a sector of the economy or on the entire economy is relevant only if the changes occurring in each sector can be supported by reasonable assumptions and sufficient data. In the analysis of comparable worth, the problem becomes one of defining these reasonable assumptions and then determining the amount of change which each sector would experience. The amount of change is dependent on the following factors:

1. The population of each of the "typically female" jobs in each sector.
2. The amount of increase to be applied to the occupants of each typically female occupation in each sector.
3. The portion of each industry's costs which are due to labor.
4. The relation between average wages for

predominantly female jobs and the average wage for the sector.

The determination of these factors is explained in the following paragraphs.

No guidance exists as to what may be considered a "typically female" position. Using the point factor means of determining comparable worth, it may be that any job which falls below the industry wage line (the regression for points versus male wages for the industry) could be considered to be typically female. If so, then even predominantly male positions could be considered to be candidates for wage adjustment. This would be carrying comparable worth to the fullest extent where the wages for all jobs in the economy will be determined by the point value. In any case, the use of the point factor system is not useful to the model. Neither do the data exist to support this analysis, and point factor systems vary so widely that any analysis would be pure speculation. The other alternative is to base the determination of whether a position is typically female on the proportion of women occupying that position. This seems to be a valid means of classifying occupations since the basic argument for comparable worth is the elimination of the sex-based earnings gap, and it is an alternative for which data are

available. For purposes of this paper, an occupation within a sector will be considered to be typically female if that occupation has a population which is 70% or more female. There is an obvious artificiality to this assumption. It is no less artificial, however, than the assumption that because a wage gap exists between two positions, then wage bias exists. The level of 70% is an arbitrary number which was used in the AFSCME analysis (See Ch. 2). While no readings have indicated that this is a good breaking point at which a wage gap appears, it seems to provide a reasonable alternative based on the studies of Rytina (1982) which show a definite break at this level in earnings differences and occupational characteristics. The decision to categorize a position as typically female is based on single industry data, i.e., a position which may be categorized as typically female in one industry may not be typically female in another.

The next determination to be made in examining the impact of comparable worth is whether only the female incumbents should receive a wage increase or whether the entire population of that occupation in that sector should receive the adjustment. For purposes of this paper it is assumed that equal pay for equal work, being the law, is enforced and that existing male-female wage discrepancies

within occupations are a result of legal factors including seniority, merit, or productivity. It is beyond the scope of this paper to interpret the extent of enforcement of the Equal Pay Act. As a result, it will be assumed that all of the incumbents of a typically female occupation within a sector will be eligible for the wage increase.

To this point, it has been determined that for purposes of the model the members of an occupation within an industry sector whose population is typically female will be entitled to a wage increase upon the implementation of comparable worth. The amount of that increase has yet to be defined. Chapter 2 contained a discussion of works relevant to the extent of the wage gap. While the extent of the wage gap varies depending upon the level of outlook (Mellor 1982), it is meaningful to use the industry level for determining the wage gap. As discussed in Chapter 2, a wage increase necessary to eliminate the wage gap is therefore 15%-18%. This range correlates well with the studies of Mellor which indicated an approximate 0.6% wage difference for each 5% change in female population. This range can be turned into a table reflecting discrete divisions for occupations based on the percentage of female incumbents. This is accomplished in the following section.

As mentioned earlier, the portion of each industry's

output which is due to the labor of that sector is found in the input/output table as a line item in the value-added section. This number can be used to convert the percentage change in labor costs into a percentage change in total costs for the sector. The means of accomplishing this was covered in the sample input/output matrix.

Finally, any model or analysis of comparable worth must recognize that the positions which are to be increased are not at the average wage for the sector. The ratio of the average female wage to the average industry wage was determined for each sector and this factor was applied.

This section presented the basics of input/output analysis and provided the justification for its use in the evaluation of the impact of comparable worth on the economy. Additionally, the assumptions which will be used in the model were presented and explanation provided. The model is designed to allow flexibility as more refined data become available and as the results of the comparable worth measures already implemented become available. The methods and assumptions contained in this section are applied to the detail model presented in the following section.

4.3 Detailed Description of the Model

This section describes the detail of the model which

determines the impact of comparable worth on the economy. A column by column description of the numbers used in the model is presented with justification where necessary. For reference, a sample portion of the model follows.

COL 1		COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8	COL 9	COL 10	COL 11
INDUSTRY		CATEGORY	ADJUST.	PERCENT	IMPACT	%	%	W. W.		LABOR	IMPACT
FOOTWEAR & LEATHER PRODUCTS		1	0.180	0.0204	0.00367						
		2	0.174	0.0348	0.00605						
	168610	3	0.168	0.0022	0.00038						
		4	0.162	0.0107	0.00173						
		5	0.156	0.0010	0.00015						
		6	0.150	0.6736	0.10104						
		TOTAL		0.7425	0.11299	0.01	366.6	0.62	0.0102568	2807.3	196.67

A summary description of each of the columns in the model follows. This summary is presented to assist in understanding the detailed description.

COLUMN	DESCRIPTION
1	Name of Industry Sector
2	Category of Labor based on % Female
3	Increase for each Category of Labor
4	Percent of the Industry in each Category
5	Impact of Increase
6	Input/Output Coefficient for that Sector
7	Labor Part of Industry's Total Costs x 1000

8	Adjuster for Women's Wages/Average Wages
9	Resulting Impact from the Row Sector on the Column Sector
10	Industry Labor (in $millions)
11	Impact on the Industry from Comparable Worth (in $millions)

The following columns involve numerical calculations:

5	Equals Col 3 x Col 4
9	Equals (Col 5 x Col 6 x Col 7 x Col 8 divided by 1000) + Col 6
11	Equals Col 5 x Col 8 x Col 10 divided by 1000

Column 1 contains the name of each of the 97 sectors of the economy shown in "Input/Output Structure of the United States Economy" prepared by Scientific American (1980). This chart was used as the input/output model throughout this paper and will be used as the source for the elements of information which are listed as being derived from the input/output model. The names of the sectors have been abbreviated to accommodate page size limitations. It should be noted that the Scientific American model is somewhat more aggregated than would be ideal; however, in order to have a manageable experiment the aggregated data were used. A more detailed model of the U. S. economy is available from the Bureau of Labor Statistics (1980) and could be used for more

detailed results. Where dollar values are used from the Scientific American model, the values are in 1972 dollars. This has been inflated to current dollars where appropriate.

Column 2 is the category of labor broken down by the percentage of females in the occupation in the sector. These categories reflect the following female populations:

CATEGORY	PERCENT FEMALE
1	95 - 100
2	90 - 95
3	85 - 90
4	80 - 85
5	75 - 80
6	70 - 75

Column 3 reflects the increase which could be expected for each of the above categories upon implementation of comparable worth. This number is based on the percentage of female in a given position and is in the range from 15% to 18%. This increase comes from the combination of numerous studies as was explained in Chapter 2. Increases for the various categories are tabulated below:

CATEGORY	PERCENT INCREASE
1	18.0
2	17.4
3	16.8

4	16.2
5	15.6
6	15.0

Column 4 shows the percentage of the total population of any industry which is in each of the categories of typically female occupations. This number was derived by taking the population of each of the occupations belonging to each of the categories and dividing each of the category totals by the total population of the industry. Source for this material is Table IV of the 1980 Census of the Population (U.S. Department of Commerce 1984). When the necessary data were not available within this document, two other documents were used for reference including Occupational Employment in Mining, Construction, Finance, and Services (U.S. Department of Labor 1984) and Employment Projections for 1985 (U.S. Department of Labor 1984). Of particular interest in column 4 is the total for each industry. This number gives the decimal portion of the population of each industry which would receive wage adjustment upon implementation of comparable worth. As an example, the footwear and leather products sector shows that 74.25% of the industry's work force would require wage adjustment under the assumptions of the model.

Column 5 of the model gives an unadjusted labor

increase for the industry. If all wages were equal within the industry, then the amount of increase in labor cost for the industry would be equal to the "Total" line under column 5 for each industry. Entries in column 5 are the products of columns 3 and 4. This number has little meaning until the adjustment reflecting the level of wages for female jobs is applied.

Column 6 lists the input/output coefficient for each industry. This number is taken from the Scientific American input/output model. The I/O coefficient is the impact in parts of a thousand that the supplier, or row, industry has upon the stone and clay mining and quarrying sector.

As an added note, this model was developed to allow flexibility for future revision. As shown, the model reflects the impact of comparable worth on the stone and clay mining and quarrying industry. With very little modification, it can be used to examine the impact of comparable worth on other sectors of the economy. The only modification required to reflect the impact of comparable worth on other industries is changing the input/output coefficients, the values found in column 6. This is a job requiring less than an hour. The data in the rest of the columns remains unchanged.

Column 7 was also previously discussed and is the labor

portion of the costs for any sector. It is expressed in parts of a thousand and is a necessary modifier to change the labor impact number developed in column 5 into the impact on the overall industry costs.

The adjustment needed to recognize that the wages to be increased are below the industry average wage is contained for each of the sectors of the economy in column 8. This deflator was derived using Tables 2 and 3 of the census volume referenced above. To obtain this number, the average women's wages for the sector were multiplied by the total number of women in the sector. This product was then divided by the sum of the average women's wages times total number of women plus average men's wages times total number of men for each sector. The result of the above calculations is the average women's wages expressed as a decimal part of the average sector wages.

Column 9 indicates the increased values of the input/output coefficient after modification by the application of comparable worth adjustment. The logic behind this was explained earlier, but in summary it gives the increase in value of supplier industry inputs to the stone and clay mining and quarrying industry. It is not an absolute value impact, but instead a "percentage" type increase of the initial coefficient. When summed at the

bottom of the page the total of the revised I/O coefficients gives a total impact in the form of a revision to the original total of 1000.00.

Column 10 is an added column which has no bearing on the impact on the stone and clay mining and quarrying industry. Rather, column 10 is needed for quantification of the effect of comparable worth on the economy. Column 9 is used in this calculation and shows the total labor dollars for each industry in millions of dollars. By applying the percentage increase in labor costs to the total labor dollars for any sector, the result is the increase in costs to the sector. This calculation is performed in column 10 of the model and when totaled at the bottom of the model, the result shows the total impact on the United States economy of the implementation of comparable worth. Both columns 9 and 10 are in millions of dollars.

In summary, the details of the input/output table developed to show the impact of comparable worth on the stone and clay mining and quarrying sector can be useful for analyzing the impact on any other sector with very little effort. The model lists the percent of employees in each of the categories of typically female positions for each of the sectors which constitutes the majority of the data necessary to determine the impact on any sector. The model has also

been constructed to show the impact on the total economy.

4.4 Results of the Model

The results of the model, the primary impact of comparable worth, are contained in this section in two parts. The first part reviews the primary impact on the stone and clay mining and quarrying sector. The analysis of the impact of comparable worth on the total economy follows.

Before presenting the net impact of comparable worth on the stone and clay industry, it is worthwhile to review some of the characteristics of that sector. Important to the impact of a measure such as comparable worth is a review of the main supplier sectors to stone and clay mining and quarrying. A review of column 6 of the model (Appendix A) shows that the sectors which provide over 1% of the worth of the output of the stone and clay sector include the following:

Construction, Mining and Oil Equipment

Radio, Television, and Communications Equipment

Primary Iron and Steel Manufacturing

Petroleum Refining and Related Industries

Automobile Repair and Service

Wholesale and Retail Trade

Real Estate and Rental

Business Services Sector, and

Stone and Clay Mining and Quarrying

Of these supplier sectors, only business services has an internal net cost change of over 1% due to comparable worth. The majority of the costs from supplier sectors is from the heavy industry sectors, all of which experienced small percentage cost changes from the implementation of comparable worth.

Internally, in the stone and clay mining and quarrying sector, the change was also small. Multiplying columns 5, 7, and 8 gives an internal change of only 0.259% in total cost as the result of comparable worth. The net labor change (column 5 times column 8) is only 0.80%. From column 4 it can be seen that only 8.28% of the total industry population would receive a wage increase if comparable worth were implemented.

Looking at the totals for the stone and clay mining and quarrying industry, it is seen that the overall cost change is 0.424%. This number is equivalent to approximately $19.3 million in 1972 dollars based on the data contained in the Scientific American input/output model.

A sample case study was conducted on one firm within this sector to allow limited comparison with the model results. The characteristics of the firm were as follow:

1. Total work force numbers 160.
2. Ten persons would be eligible for wage increase if comparable worth were implemented.
3. The increase would be about 16.5%.
4. Labor accounts for approximately 35% of the firm's total costs.

If comparable worth were implemented, this firm would have a labor cost increase of 0.64% and an increase in total costs of production of 0.223%. Of its total labor force, 6.25% could expect wage increases. While it is not known whether these figures are representative of a typical firm within the industry, the short case study provides results which are remarkably similar to the model.

In summarizing the impact of comparable worth on the stone and clay mining and quarrying sector, it is apparent that the costs involved in the primary impact are not large. This particular sector relies heavily on those industries which themselves would not incur large increases in the cost of doing business if comparable worth were implemented because they are not sectors in which female dominated jobs abound. The secondary impacts, which may have more importance, are covered in the following section.

While the stone and clay mining and quarrying sector and other primary and heavy industries would not incur large

increases in the cost of doing business with the implementation of comparable worth, there are sectors within the economy which would incur large increases. The sector whose cost increases would have the largest impact on the economy is the medical and educational services and non-profit sector. While a total sector analysis, similar to that of the one for the stone and clay industry, was not prepared, the model used for stone and clay indicates the large internal cost increases which that sector would experience. Of significance is that 68% of the employees of this sector would be candidates for wage increases if comparable worth were implemented (Column 4). The result of these wage increases would be a 8.1% increase in labor costs resulting in an increase of 4.20% in overall costs. Since 83.7% of this sector's output is in the personal consumption expenditures part of the economy, and 94.7% is in the final demand part (which includes personal consumption expenditures), little of this effect is seen impacting industry in the input/output matrix. The overall added cost to the economy from this sector in 1972 dollars is $6.02 billion of which only $320 million is seen in the inter-industry section of the I/O matrix. Since the model in this paper was prepared to determine the impact of comparable worth on a sector of the economy, the subject of

changes in the external portion of the I/O matrix will be covered in the section on secondary impact.

There are other sectors of the economy which would incur large cost increases as a result of the implementation of comparable worth. These industries include the footwear and leather products sector, the apparel sector, the miscellaneous fabricated textile products sector, and the broad and narrow fabrics sector. In each of these sectors more than 75% of the employees would receive wage increases.

During the development of the model to determine the impact of comparable worth on a particular sector, the model was adapted to show the impact of comparable worth on the labor costs in the entire economy. Columns 10 and 11 were added to the model to determine this overall impact. Multiplying column 10 (the labor cost in each industry from the referenced I/O structure) times the percentage change in labor for each sector (column 5 times column 8) gives the results of the labor change which would occur within the industry sector of the matrix. This does not include the labor costs which are listed in the final demand part of the I/O chart. The net result of labor change from this method is an added cost of $21.4 billion in 1972 dollars or a percentage increase of 2.35%. This number reflects the data from the I/O matrix which was current as of 1972. Applying

the employment cost index (BLS 1984)to inflate the numbers to 1984 dollars results in a total added cost the the economy of $52.9 billion. It is assumed that the percentage impact would not change.

What is seen in the impact on the overall economy is that the percentage change is not significantly large. The problem is, however, that the change which would occur is very small in some industries with the weight of the change being borne by a few industries. Additionally, this percentage change is not occurring evenly throughout the economy. So while the overall impact on the economy is not great, the fact that it is caused by large changes applied to a select few is cause for concern. The problem of the flow through effects of the changes noted by the I/O matrix will be the subject of speculation in the following section.

4.5 Secondary Impact of Comparable Worth

This section discusses what has previously been called the secondary impact of comparable worth on the economy. The subject material is speculative in nature; however, when possible, the events which may occur have been documented. Additionally, figures have been prepared to allow the reader to interpret the various possibilities.

Secondary impact refers to possible events which may

occur as a result of the implementation of comparable worth which cannot be analyzed by the model. Such occurrences can result from market or labor pressures, or from other sources which are relatively unpredictable. In analyzing the potential of secondary impact of comparable worth, it is important to recognize that the labor market is not a rational, homogeneous entity. It is composed of people, and, as was stated earlier, compensation systems must recognize perception of pay equity rather than some scientific formula.

The surveys of Rynes, Rosen, and Mahoney (1984) give some clues of comparable worth expectations which may be considered secondary effects. One of the expected secondary effects indicated by this survey is evidenced by the survey result stating that 43.7% of the respondents felt that unions representing male workers would push for wage gains to offset the wage increases for female workers. This expectation is reflective of the possibility of perceived inequities on the part of male workers causing a strong push for higher wages, including, if necessary, movement between firms to obtain these increases. This is an example of the market seeking equilibrium based on perceived disequilibrium.

A second possibility is that the market will become out

of balance as a result of comparable worth. Increased wages for female positions may increase the supply of labor to these positions, including transfer of labor from the blue collar sector. This possibility is supported by the survey result of Rynes in which 25.4% of the respondents felt that without the traditional pay differences it would be hard to attract labor to jobs requiring physical effort or offering poor working conditions. This excess quantity supplied will tend to drive down the worth of the positions resulting in a market that is in economic equilibrium but is not in "comparable worth balance." Both the perceived inequity and the actual out-of-balance market conditions have the same results. Figure 1 defines simply the market process in this adjustment.

If it is assumed that comparable worth is the law and that the market adjustment process is not allowed to bring itself into equilibrium through the establishment of wage levels, then it can be speculated that the adjustment process will occur through the quantity demanded process. While economics assumes that the rational employer hires to the level where the marginal revenue gained by the hiring of one more unit of labor is equal to the marginal cost of that labor, it is difficult to assign marginal revenue to the

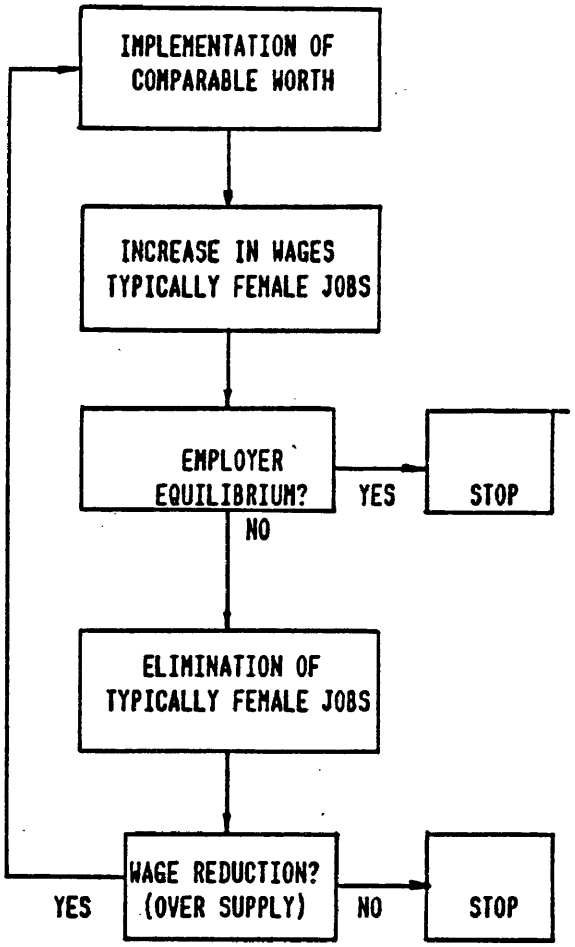

Figure 1

Labor Supply Adjustment

typically female positions since they are generally white collar positions and largely clerical. It may be assumed, however, that the rational employer does hire to the level at which his utility or perceived utility from the last worker, even clerical, is equal to the cost of that worker. Increasing the cost of that worker will mean that the cost is in excess of the utility and that cutbacks in staffing are predictable. While it is recognized that certain firms operate at a plateau where it is not possible to lay off any clerical support, this is not the case in general. It can be anticipated that there would be a reduction in the economy for the jobs classified as typically female. It is possible that this layoff or reduction would occur in the form of increased capital investment for word processing equipment, better telephone systems, and other capital equipment which increases the efficiency of the clerical jobs. Whatever the process, labor to capital transformation is possible. This process is portrayed at Figure 2.

A third survey result is the expectation that certain industries, such as the textile industries, would experience increased foreign competition and would possibly disappear from the economy. There is no question that certain industries depend on the low cost of labor to survive. Comparable worth would put these industries in certain

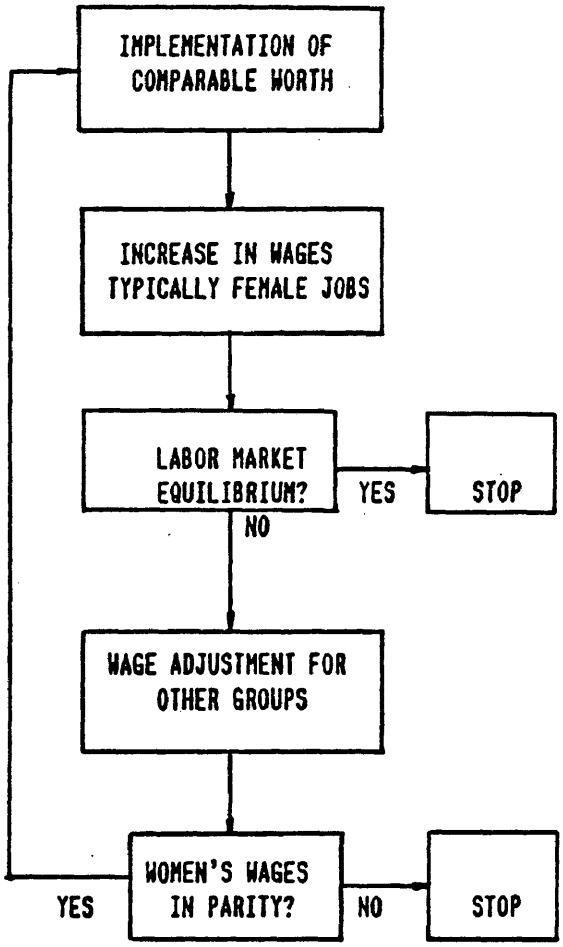

Figure 2

Labor Demand Adjustment

danger. There is no question that these firms have to pay at a certain level within the economy to attract high quality management and technical personnel. If the rest of their work force is tied to these wage levels, there are two alternatives. The first is to offer well below market rates for management and technical personnel in order to keep the rest of the wage levels reasonable. This would automatically ensure low quality personnel at the managerial and technical level which would ultimately make the firms noncompetitive. The other possibility is to pay increased wages to the entire work force, again making the firm noncompetitive in the market place. The disappearance of these firms is a distinct possibility should comparable worth be implemented. Figure 3 shows the market interaction of this case.

Based on the ratio of labor in portions of the input/output matrix which are external to the inter-industry matrix, it would appear that in excess of 25% of the increased costs would impact final demand. With the increased costs in this area, it can be speculated that the economy would tend toward a cost-push inflationary effect. Maintenance of the comparable worth standard would only cause the inflationary spiral to accelerate. For example, people wishing to keep up with the rising costs of health

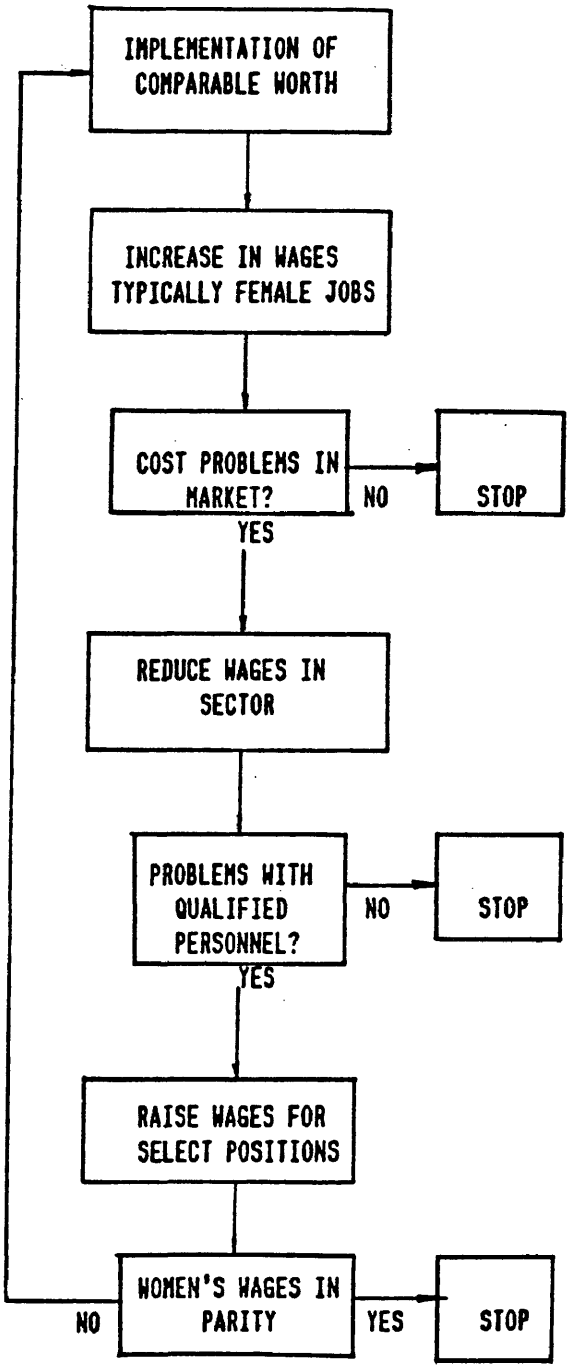

Figure 3

Internal Equity Adjustments

care would push for wage increases with which to cover the new costs. As their wages increased, so would the wages of the health care professionals in the medical and educational services sector previously noted as being one of the main sectors impacted by comparable worth. This increase would cause more pushing for higher wages in the cost spiral. This type of effect is noted in figure 4.

In summary, there are a number of different events which could occur to rectify a real or perceived imbalance in the economy caused by the implementation of comparable worth. None of the events is healthy to the economy. Possible results from comparable worth include loss of women's jobs, inflation caused by pushing for higher wages due to men's perceived inequity, or a cost-push inflationary spiral as a result of increased costs of living from the comparable worth effects impacting the final demand sector. Not addressed is the tax-bite which could occur as a result of the significantly increased costs in the public sector which are also highly impacted by the medical and educational services sector. While the secondary impacts of comparable worth are not entirely predictable, it is certain that a certain amount of turbulence would occur in the economy. The monetary effects of comparable worth are not excessive in the amount of dollars involved. The fact that

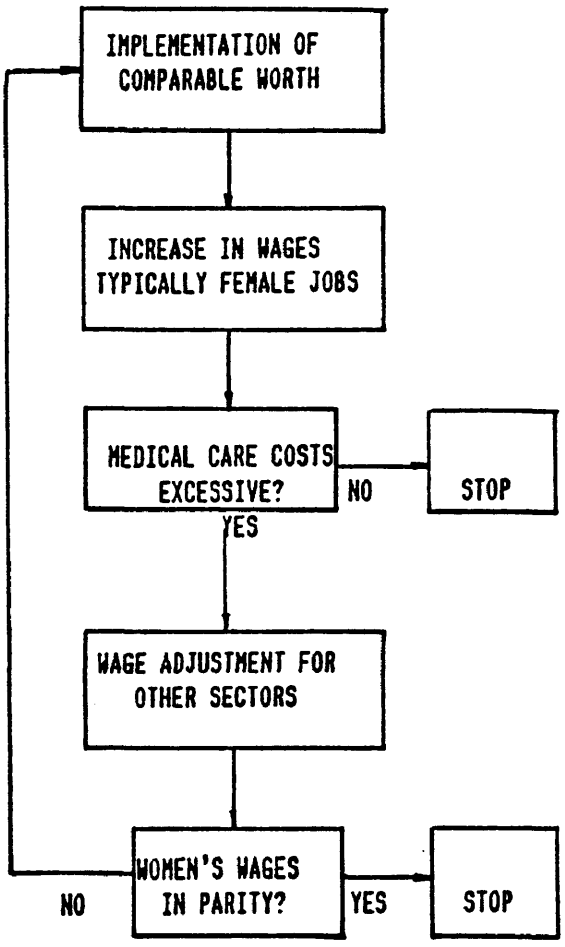

Figure 4

Cost-Push Spiral (Goods Market Adjustment)

the concept involves such a massive redistribution of income to select sectors of the economy makes the concept extrememly volatile. The secondary effects of comparable worth are worthy of in-depth research.

CHAPTER 5

SUMMARY AND RECOMMENDATIONS

5.1 Summary

This paper has reviewed the concept of comparable worth from a number of perspectives. While numerous articles have been concerned with the legal, political, and bargaining issues involved with comparable worth, and while many economists have presented in-depth theories concerning the earnings gap, it is felt that this paper has taken a wholly different perspective.

This paper has reviewed the legal, political, and bargaining issues involved with comparable worth and found that even though the courts fail to recognize comparable worth as an issue, even though Congress has not passed a comparable worth bill, and even though the unions have yet to make a major effort to install the concept, comparable worth is edging its way into the economy. In spite of the fact that economists find no explanation which would justify the degree to which comparable worth measures are eliminating or overreacting to the wage gap, the issue of comparable worth continues to weave its way into the economy. As a result, this paper has taken the approach that it is worthwhile to investigate the economic impact of

comparable worth the way it is being implemented rather than the way it should be implemented.

The simple model of the economy as comparable worth would affect it shows that the amount of dollars involved in the implementation of the concept is not extremely large. The main problem is in the distribution of the dollars. A very few sectors have high potential impact from implementation of the concept. Accordingly, the dissatisfaction which is possible from its implementation far exceeds the potential total dollar damage to the economy.

Not cited in this work to any large degree is the fact that the elimination of market pricing within the United States economy is in direct opposition to the principles for which this country stands. To allow bureaucracies to set wage levels within the economy is perhaps the most dangerous aspect of the concept of comparable worth. While comparable worth is a catchy phrase and overall is an achievable goal, it is not a goal which should be attained within the legal or political framework. Given the desire of the competitive economy to achieve maximum efficiency, it is only through employer's utilization of the most efficient personnel that this can be accomplished, whether those persons be male or female.

In final summary, there is an obvious wage gap. The causes for this gap are not completely explainable, but it can be stated with certainty that the reason for this gap is not too little legislation. The economy, operating within the legal framework of equal pay for equal work, can and must achieve comparable worth objectives. A law for comparable worth can only achieve economic turbulence.

5.2 Recommendations for Further Research

The subject of comparable worth has many aspects and many areas for further economic research. While some of these areas have been summarily addressed in this paper, in-depth research is certainly needed. This section will cite some of these areas.

While this paper has evaluated the impact of comparable worth in a single sector and developed a model applicable to any single sector, it has not fully addressed the shifting which would occur in the personal consumption or the other final demand sectors. The shifting of incomes as radically as the concept requires will have a significant impact on these areas.

Noted as being worthy of further research is the empirical evidence of crowding in the typically female labor markets. In conducting the research necessary to support

this paper, no major work was found in this area. A suggestion for research in this area is a survey of employment operations to determine the percentage of female applicants which continue to apply for typically female type work. It is believed by the author that this is a major contributing factor to the depressed wages of women and deserves major research.

Bargaining table issues are also worthy of deeper research than has been presented in this paper. While this paper has reviewed the actions taken by the unions in the area of comparable worth, it has not fully identified the reasons for the union's interest in the issue. Specifically, what are the unions going to gain from comparable worth? What will be the impact of comparable worth on the overall wage levels within any organization? Finally, in the long run, will unions have a right to dues from all members of an organization which is under the jurisdiction of comparable worth?

Another area which may be empirically supportable for research is the migration of blue collar male workers to previously typically female jobs in the event of comparable worth. Will the supply for these jobs increase under the impact of comparable sorth as speculated and, if so, what will be the market remedies? Labor migration can be

contrasted with the potential reduction of female typical positions in the event of comparable worth.

It is almost unfortunate that the preparation of this paper was limited to a specific area. The concept of comparable worth is unlike any other concept in its potential impact on the American economy. It is a pitting of a questionable means of determining point values against market forces. The concept is being implemented daily in small and large ways. Any research on the potential impact of the concept may soon turn into research into why it happened.

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INDUSTRY WOMEN POSITIONS BY CATEGORY 779

COL 1	COL 2	COL 3	COL 4	COL 5	GRAVEL COL 6	LABOR COL 7	% COL 8	IMPACT COL 9	INDUSTRY COL 10	$ COL 11
INDUSTRY	CATEGORY	ADJUST.	PERCENT	IMPACT	%	%	W. W.		LABOR	IMPACT
FOOTWEAR & LEATHER PRODUCTS	1	0.180	0.0204	0.00367						
	2	0.174	0.0348	0.00605						
	3	0.168	0.0022	0.00036						
	4	0.162	0.0107	0.00173						
	5	0.156	0.0010	0.00015						
	6	0.150	0.6736	0.10104						
	TOTAL		0.7425	0.11299	0.01	366.6	0.77	0.0103189	2807.3	244.25
MISC. FURNITURE & FIXTURES	1	0.180	0.0271	0.00488						
	2	0.174	0.0143	0.00249						
	3	0.168	0.0377	0.00634						
	4	0.162	0.0004	0.00007						
	5	0.156	0.0139	0.00217						
	6	0.150	0.0033	0.00049						
	TOTAL		0.0968	0.01644	0.04	363.6	0.68	0.0401625	2291.8	25.62
HOUSEHOLD FURNITURE	1	0.180	0.0271	0.00488						
	2	0.174	0.0143	0.00249						
	3	0.168	0.0377	0.00634						
	4	0.162	0.0004	0.00007						
	5	0.156	0.0139	0.00217						
	6	0.150	0.0033	0.00049						
	TOTAL		0.0968	0.01644	0.01	316.8	0.68	0.0100354	3901.2	43.61
TOBACCO MANUFACTURES	1	0.180	0.0364	0.00655						
	2	0.174	0.0015	0.00026						
	3	0.168	0.0034	0.00057						
	4	0.162	0.0000	0.00000						
	5	0.156	0.0349	0.00545						
	6	0.150	0.1185	0.01778						
	TOTAL		0.1947	0.03061	0.08	79.4	0.54	0.0801049	1241.4	20.52
APPAREL	1	0.180	0.0201	0.00362						
	2	0.174	0.7098	0.12350						

	3	0.168	0.0160	0.00268						
	4	0.162	0.0018	0.00029						
	5	0.156	0.0163	0.00254						
	6	0.150	0.0300	0.00450						
TOTAL			0.7940	0.13714	0.8	298.5	0.77	0.8252168	15246	1609.95
MISC FABRICATED TEXTILE PROD	1	0.180	0.0201	0.00362						
	2	0.174	0.7098	0.12350						
	3	0.168	0.0160	0.00268						
	4	0.162	0.0018	0.00029						
	5	0.156	0.0163	0.00254						
	6	0.150	0.0300	0.00450						
TOTAL			0.7940	0.13714	0.02	275.6	0.77	0.0205820	2295.5	242.40
DRUGS; CLEANING & TOILET PREP	1	0.180	0.0689	0.01241						
	2	0.174	0.0025	0.00044						
	3	0.168	0.0237	0.00397						
	4	0.162	0.0751	0.01216						
	5	0.156	0.0502	0.00783						
	6	0.150	0.0094	0.00140						
TOTAL			0.2297	0.03821	0.34	202.7	0.54	0.3414220	5906.4	121.87
FOOD & KINDRED PRODUCTS	1	0.180	0.0288	0.00519						
	2	0.174	0.0031	0.00054						
	3	0.168	0.0216	0.00362						
	4	0.162	0.0024	0.00039						
	5	0.156	0.0124	0.00194						
	6	0.150	0.0842	0.01263						
TOTAL			0.1525	0.02431	0.22	144.9	0.61	0.2204727	28992	429.91
TIRES & INNER TUBES	1	0.180	0.0265	0.00477						
	2	0.174	0.0115	0.00201						
	3	0.168	0.0025	0.00041						
	4	0.162	0.0000	0.00000						
	5	0.156	0.0080	0.00125						
	6	0.150	0.0000	0.00000						
TOTAL			0.0485	0.00843	7.18	320.7	0.61	7.1918442	3187.9	16.40
MTRLS HANDLING MACH & EQUIP	1	0.180	0.0406	0.00731						
	2	0.174	0.0023	0.00039						
	3	0.168	0.0040	0.00067						
	4	0.162	0.0000	0.00000						

	5	0.156	0.0192	0.00299						
	6	0.150	0.0000	0.00000						
TOTAL			0.0660	0.01137	8.69	352.5	0.61	8.7112367	1676.4	11.62
MISCELLANEOUS MANUFACTURING	1	0.180	0.0406	0.00731						
	2	0.174	0.0023	0.00039						
	3	0.168	0.0040	0.00067						
	4	0.162	0.0000	0.00000						
	5	0.156	0.0192	0.00299						
	6	0.150	0.0000	0.00000						
TOTAL			0.0660	0.01137	1.52	302.8	0.54	1.5228247	6139.1	37.68
OPT, OPTH, & PHOTO EQUIPMENT	1	0.180	0.0524	0.00944						
	2	0.174	0.0204	0.00356						
	3	0.168	0.0121	0.00202						
	4	0.162	0.0133	0.00216						
	5	0.156	0.1171	0.01827						
	6	0.150	0.0109	0.00163						
TOTAL			0.2262	0.03708	0.17	317.7	0.64	0.1712816	3508.3	83.25
ENG, SCIENT, & MED. INSTRUM	1	0.180	0.0491	0.00884						
	2	0.174	0.0010	0.00017						
	3	0.168	0.0181	0.00304						
	4	0.162	0.0012	0.00020						
	5	0.156	0.1728	0.02696						
	6	0.150	0.0000	0.00000						
TOTAL			0.2422	0.03920	0.08	402.6	0.64	0.0808080	2455.3	61.60
OFFICE, COMPUTING & ACC'T MACH	1	0.180	0.0559	0.01007						
	2	0.174	0.0033	0.00057						
	3	0.168	0.0007	0.00011						
	4	0.162	0.0189	0.00307						
	5	0.156	0.0303	0.00473						
	6	0.150	0.0146	0.00218						
TOTAL			0.1237	0.02073	0.07	341.7	0.64	0.0703174	4654.8	61.77
ORDNANCE & ACCESSORIES	1	0.180	0.0410	0.00739						
	2	0.174	0.0014	0.00024						
	3	0.168	0.0011	0.00018						
	4	0.162	0.0156	0.00252						
	5	0.156	0.0000	0.00000						
	6	0.150	0.0000	0.00000						

	TOTAL			0.0591	0.01033	0.27	505.9	0.62	0.2708751	6087.5	39.00
SPECIAL INDUSTRY M & E		1	0.180	0.0377	0.00679						
		2	0.174	0.0041	0.00071						
		3	0.168	0.0179	0.00300						
		4	0.162	0.0005	0.00009						
		5	0.156	0.0009	0.00015						
		6	0.150	0.0002	0.00002						
	TOTAL			0.0613	0.01075	0.3	382.4	0.61	0.3007523	3793.5	24.88
MISC. TRANSPORTATION EQUIPMENT		1	0.180	0.0261	0.00470						
		2	0.174	0.0013	0.00022						
		3	0.168	0.0083	0.00140						
		4	0.162	0.0001	0.00002						
		5	0.156	0.0000	0.00000						
		6	0.150	0.0003	0.00004						
	TOTAL			0.0361	0.00638	0.59	326.9	0.64	0.5907880	7068.5	28.88
FARM MACHINERY & EQUIPMENT		1	0.180	0.0299	0.00539						
		2	0.174	0.0028	0.00048						
		3	0.168	0.0007	0.00012						
		4	0.162	0.0176	0.00285						
		5	0.156	0.0000	0.00000						
		6	0.150	0.0000	0.00000						
	TOTAL			0.0510	0.00885	0.83	286.1	0.61	0.8312812	2696.3	14.55
CONST, MINING, & OIL EQUIP		1	0.180	0.0377	0.00679						
		2	0.174	0.0041	0.00071						
		3	0.168	0.0179	0.00300						
		4	0.162	0.0005	0.00009						
		5	0.156	0.0009	0.00015						
		6	0.150	0.0002	0.00002						
	TOTAL			0.0613	0.01075	35.87	331	0.61	35.947864	4421.1	28.99
AIRCRAFT & PARTS		1	0.180	0.0395	0.00712						
		2	0.174	0.0000	0.00000						
		3	0.168	0.0025	0.00041						
		4	0.162	0.0001	0.00002						
		5	0.156	0.0105	0.00163						
		6	0.150	0.0000	0.00000						
	TOTAL			0.0526	0.00918	0.65	445	0.64	0.6516991	12821	75.31

HOUSEHOLD APPLIANCES		1	0.180	0.0273	0.00491					
		2	0.174	0.0041	0.00071					
		3	0.168	0.0002	0.00003					
		4	0.162	0.0285	0.00462					
		5	0.156	0.0000	0.00000					
		6	0.150	0.0040	0.00060					
	TOTAL			0.0640	0.01087	0.07	270.8	0.61	0.0701256	3053.9	20.24
SERVICE-INDUSTRY MACHINES		1	0.180	0.0377	0.00679					
		2	0.174	0.0041	0.00071					
		3	0.168	0.0018	0.00030					
		4	0.162	0.0005	0.00009					
		5	0.156	0.0009	0.00015					
		6	0.150	0.0002	0.00002					
	TOTAL			0.0452	0.00805	0.25	277.9	0.61	0.2503412	4002.6	19.66
WATCHES, CLOCKS & MEAS. INST.		1	0.180	0.0456	0.00820					
		2	0.174	0.0000	0.00000					
		3	0.168	0.0941	0.01580					
		4	0.162	0.0103	0.00167					
		5	0.156	0.0000	0.00000					
		6	0.150	0.3370	0.05056					
	TOTAL			0.4870	0.07623	0.06	391	0.64	0.0611445	2238.2	109.20
ELECTRIC TRANS & DIST EQUIP		1	0.180	0.0345	0.00620					
		2	0.174	0.0043	0.00074					
		3	0.168	0.0157	0.00263					
		4	0.162	0.0196	0.00318					
		5	0.156	0.0380	0.00593					
		6	0.150	0.1896	0.02844					
	TOTAL			0.3016	0.04713	0.18	392.7	0.64	0.1821320	3349.6	101.03
ENGINES & TURBINES		1	0.180	0.0329	0.00592					
		2	0.174	0.0018	0.00031					
		3	0.168	0.0017	0.00029					
		4	0.162	0.0016	0.00027					
		5	0.156	0.0000	0.00000					
		6	0.150	0.0126	0.00189					
	TOTAL			0.0506	0.00867	10.53	320.3	0.61	10.547847	2932	15.52
RADIO, T.V. & COMM EQUIP		1	0.180	0.0085	0.00154					
		2	0.174	0.0013	0.00022					

	3	0.168	0.0001	0.00001						
	4	0.162	0.0089	0.00145						
	5	0.156	0.0000	0.00000						
	6	0.150	0.0012	0.00019						
TOTAL			0.0200	0.00340	0.18	415.6	0.61	0.1801552	12631	26.21
ELECTRIC LIGHTING & WIRING EQ.	1	0.180	0.0345	0.00620						
	2	0.174	0.0043	0.00074						
	3	0.168	0.0157	0.00263						
	4	0.162	0.0196	0.00318						
	5	0.156	0.0380	0.00593						
	6	0.150	0.1896	0.02844						
TOTAL			0.3016	0.04713	0.46	335.3	0.64	0.4646521	3135.9	94.59
MOTOR VEHICLES & EQUIP	1	0.180	0.0203	0.00366						
	2	0.174	0.0016	0.00027						
	3	0.168	0.0012	0.00020						
	4	0.162	0.0004	0.00007						
	5	0.156	0.0094	0.00146						
	6	0.150	0.0006	0.00009						
TOTAL			0.0335	0.00576	7.29	191.3	0.66	7.2952979	21093	80.13
MISC. ELEC. MACH, EQUIP & SUPPLI	1	0.180	0.0345	0.00620						
	2	0.174	0.0043	0.00074						
	3	0.168	0.0157	0.00263						
	4	0.162	0.0196	0.00318						
	5	0.156	0.0380	0.00593						
	6	0.150	0.1896	0.02844						
TOTAL			0.3016	0.04713	0.31	354.4	0.62	0.3132102	2572	75.15
GENERAL INDUSTRIAL M & E	1	0.180	0.0377	0.00679						
	2	0.174	0.0041	0.00071						
	3	0.168	0.0179	0.00300						
	4	0.162	0.0005	0.00009						
	5	0.156	0.0009	0.00015						
	6	0.150	0.0002	0.00002						
TOTAL			0.0613	0.01075	5.42	398.9	0.61	5.4341789	5496.9	36.05
METALWORKING MACH & EQUIP	1	0.180	0.0364	0.00655						
	2	0.174	0.0002	0.00003						
	3	0.168	0.0194	0.00326						
	4	0.162	0.0000	0.00000						

	5	0.156	0.0000	0.00000						
	6	0.150	0.0005	0.00008						
TOTAL			0.0565	0.00992	0.41	485.8	0.61	0.4112057	5877.7	35.58
ELECTRICAL INDUSTRIAL APPARATUS	1	0.180	0.0551	0.00991						
	2	0.174	0.0015	0.00025						
	3	0.168	0.0010	0.00016						
	4	0.162	0.0127	0.00206						
	5	0.156	0.0221	0.00344						
	6	0.150	0.0306	0.00458						
TOTAL			0.1228	0.02041	1.59	409.4	0.64	1.5985033	3721.5	48.61
ELECTRON TUBES	1	0.180	0.0551	0.00991						
	2	0.174	0.0015	0.00025						
	3	0.168	0.0010	0.00016						
	4	0.162	0.0127	0.00206						
	5	0.156	0.0221	0.00344						
	6	0.150	0.0306	0.00458						
TOTAL			0.1228	0.02041	0.01	458	0.64	0.0100598	1066.7	13.93
SEMICONDUCTORS	1	0.180	0.0551	0.00991						
	2	0.174	0.0015	0.00025						
	3	0.168	0.0010	0.00016						
	4	0.162	0.0127	0.00206						
	5	0.156	0.0221	0.00344						
	6	0.150	0.0306	0.00458						
TOTAL			0.1228	0.02041	0.04	497.1	0.64	0.0402597	2050.6	26.79
MISC ELECTRONIC COMPONENTS	1	0.180	0.0551	0.00991						
	2	0.174	0.0015	0.00025						
	3	0.168	0.0010	0.00016						
	4	0.162	0.0127	0.00206						
	5	0.156	0.0221	0.00344						
	6	0.150	0.0306	0.00458						
TOTAL			0.1228	0.02041	0.07	394	0.64	0.0703602	3065.9	40.05
HEAT, PLUMB, & STRUC METAL PROD	1	0.180	0.0325	0.00585						
	2	0.174	0.0000	0.00000						
	3	0.168	0.0234	0.00393						
	4	0.162	0.0000	0.00000						
	5	0.156	0.0001	0.00002						
	6	0.150	0.0131	0.00196						

	TOTAL			0.0691	0.01176	2.11	298.9	0.62	2.1145988	7756.1	56.56
MISC. MACHINERY		1	0.180	0.0377	0.00679						
		2	0.174	0.0041	0.00071						
		3	0.168	0.0018	0.00030						
		4	0.162	0.0005	0.00009						
		5	0.156	0.0009	0.00015						
		6	0.150	0.0002	0.00002						
	TOTAL			0.0452	0.00805	0.86	434	0.61	0.8618330	3265.8	16.04
METAL CONTAINERS		1	0.180	0.0360	0.00648						
		2	0.174	0.0033	0.00057						
		3	0.168	0.0189	0.00318						
		4	0.162	0.0000	0.00000						
		5	0.156	0.0001	0.00001						
		6	0.150	0.0003	0.00005						
	TOTAL			0.0586	0.01029	0.16	218.9	0.62	0.1602234	1802.8	11.50
STAMPINGS, SCREW-MACH, BOLTS		1	0.180	0.0360	0.00648						
		2	0.174	0.0033	0.00057						
		3	0.168	0.0189	0.00318						
		4	0.162	0.0000	0.00000						
		5	0.156	0.0001	0.00001						
		6	0.150	0.0003	0.00005						
	TOTAL			0.0586	0.01029	2.26	360.8	0.62	2.2652031	6870.8	43.84
OTHER FABRIC. METAL PRODUCTS		1	0.180	0.0325	0.00585						
		2	0.174	0.0000	0.00000						
		3	0.168	0.0234	0.00393						
		4	0.162	0.0000	0.00000						
		5	0.156	0.0001	0.00002						
		6	0.150	0.0131	0.00196						
	TOTAL			0.0691	0.01176	6.89	347.2	0.62	6.9074437	8331.5	60.75
PRIMARY COPPER MANUFACTURE		1	0.180	0.0339	0.00610						
		2	0.174	0.0010	0.00017						
		3	0.168	0.0000	0.00000						
		4	0.162	0.0094	0.00152						
		5	0.156	0.0045	0.00071						
		6	0.150	0.0028	0.00042						
	TOTAL			0.0516	0.00892	1.37	120.5	0.62	1.3709132	1385.8	7.67

PRIMARY ALUMINUM MANUFACTURE	1	0.180	0.0339	0.00610						
	2	0.174	0.0010	0.00017						
	3	0.168	0.0000	0.00000						
	4	0.162	0.0094	0.00152						
	5	0.156	0.0045	0.00071						
	6	0.150	0.0028	0.00042						
TOTAL			0.0516	0.00892	1.12	234.9	0.62	1.1214553	3056.4	16.91
OTHER PRIM. NON-FERROUS METAL MA	1	0.180	0.0339	0.00610						
	2	0.174	0.0010	0.00017						
	3	0.168	0.0000	0.00000						
	4	0.162	0.0094	0.00152						
	5	0.156	0.0045	0.00071						
	6	0.150	0.0028	0.00042						
TOTAL			0.0516	0.00892	1.93	188.2	0.62	1.9320092	3018.9	16.70
NON-FERROUS ORES MINING	1	0.180	0.0132	0.00238						
	2	0.174	0.0012	0.00021						
	3	0.168	0.0152	0.00255						
	4	0.162	0.0529	0.00857						
	5	0.156	0.0030	0.00047						
	6	0.150	0.0000	0.00000						
TOTAL			0.0855	0.01418	0.01	269.4	0.58	0.0100221	1034.1	8.50
PRIMARY IRON & STEEL MANUF.	1	0.180	0.0190	0.00343						
	2	0.174	0.0057	0.00100						
	3	0.168	0.0000	0.00000						
	4	0.162	0.0000	0.00000						
	5	0.156	0.0007	0.00012						
	6	0.150	0.0071	0.00106						
TOTAL			0.0326	0.00560	23.8	314.7	0.65	23.827252	19524	71.04
IRON & FERRO-ALLOY ORES MINING	1	0.180	0.0184	0.00331						
	2	0.174	0.0010	0.00017						
	3	0.168	0.0092	0.00155						
	4	0.162	0.0333	0.00539						
	5	0.156	0.0051	0.00080						
	6	0.150	0.0000	0.00000						
TOTAL			0.0670	0.01122	0	200.6	0.58	0	418.2	2.72
PRINTING & PUBLISHING	1	0.180	0.0521	0.00938						
	2	0.174	0.0235	0.00409						

	3	0.168	0.0116	0.00195						
	4	0.162	0.0187	0.00302						
	5	0.156	0.0478	0.00745						
	6	0.150	0.0016	0.00024						
TOTAL			0.1553	0.02614	6.18	383.2	0.60	6.2171466	19285	302.50
GLASS & GLASS PRODUCTS	1	0.180	0.0319	0.00574						
	2	0.174	0.0010	0.00018						
	3	0.168	0.0171	0.00287						
	4	0.162	0.0019	0.00031						
	5	0.156	0.0011	0.00018						
	6	0.150	0.0140	0.00209						
TOTAL			0.0670	0.01137	0.14	369.6	0.63	0.1403706	3490	25.00
STONE & CLAY PRODUCTS	1	0.180	0.0319	0.00574						
	2	0.174	0.0010	0.00018						
	3	0.168	0.0171	0.00287						
	4	0.162	0.0019	0.00031						
	5	0.156	0.0011	0.00018						
	6	0.150	0.0140	0.00209						
TOTAL			0.0670	0.01137	1.64	318.1	0.63	1.6437373	8211.8	58.83
PAPER & PAPERBOARD PRODUCTS (X C	1	0.180	0.0380	0.00685						
	2	0.174	0.0213	0.00371						
	3	0.168	0.0000	0.00000						
	4	0.162	0.0110	0.00178						
	5	0.156	0.0008	0.00012						
	6	0.150	0.0000	0.00000						
TOTAL			0.0711	0.01246	4.16	261.3	0.60	4.1681263	3832	28.65
PULP & PAPER MILLS (X BUILD)	1	0.180	0.0293	0.00528						
	2	0.174	0.0058	0.00101						
	3	0.168	0.0025	0.00041						
	4	0.162	0.0089	0.00145						
	5	0.156	0.0000	0.00000						
	6	0.150	0.0024	0.00036						
TOTAL			0.0489	0.00850	0.05	241.5	0.60	0.0500616	2878.3	14.69
PAPERBOARD MILLS	1	0.180	0.0293	0.00528						
	2	0.174	0.0058	0.00101						
	3	0.168	0.0025	0.00041						
	4	0.162	0.0089	0.00145						

	5	0.156	0.0000	0.00000						
	6	0.150	0.0024	0.00036						
TOTAL			0.0489	0.00850	0.12	273.2	0.60	0.1201672	1908	9.74
WOODEN CONTAINERS	1	0.180	0.0283	0.00510						
	2	0.174	0.0201	0.00349						
	3	0.168	0.0001	0.00002						
	4	0.162	0.0080	0.00130						
	5	0.156	0.0035	0.00054						
	6	0.150	0.0000	0.00000						
TOTAL			0.0600	0.01046	0	312.6	0.63	0	246.2	1.62
LUMBER & WOOD PRODUCTS (X CON)	1	0.180	0.0200	0.00360						
	2	0.174	0.0027	0.00047						
	3	0.168	0.0131	0.00220						
	4	0.162	0.0002	0.00004						
	5	0.156	0.0009	0.00013						
	6	0.150	0.0063	0.00094						
TOTAL			0.0432	0.00739	0.04	232	0.63	0.0400431	8437.9	39.26
FOREST & FISHERY PRODUCTS	1	0.036	0.0360	0.00130						
	2	0.005	0.0051	0.00003						
	3	0.015	0.0148	0.00022						
	4	0.016	0.0164	0.00027						
	5	0.001	0.0012	.00000						
	6	0.005	0.0049	0.00002						
TOTAL			0.0783	0.00183	0	200.2	0.48	0	667.1	0.59
MISC. TEXTILE GOODS	1	0.180	0.0204	0.00368						
	2	0.174	0.0911	0.01584						
	3	0.168	0.0024	0.00040						
	4	0.162	0.0151	0.00245						
	5	0.156	0.0521	0.00812						
	6	0.150	0.0019	0.00028						
TOTAL			0.1829	0.03077	0.03	193.1	0.77	0.0301372	1945.5	46.09
MISC RUBBER PRODUCTS	1	0.180	0.0265	0.00477						
	2	0.174	0.0115	0.00201						
	3	0.168	0.0025	0.00041						
	4	0.162	0.0000	0.00000						
	5	0.156	0.0080	0.00125						
	6	0.150	0.0000	0.00000						

	TOTAL			0.0485	0.00843	0.44	310	0.61	0.4407016	1729.8	8.90
MISC. PLASTICS PRODUCTS		1	0.180	0.0265	0.00477						
		2	0.174	0.0115	0.00201						
		3	0.168	0.0025	0.00041						
		4	0.162	0.0000	0.00000						
		5	0.156	0.0080	0.00125						
		6	0.150	0.0000	0.00000						
	TOTAL			0.0485	0.00843	2.3	290.5	0.61	2.3034368	5636.5	28.99
BROAD & NARROW FABRICS		1	0.180	0.0201	0.00362						
		2	0.174	0.7098	0.12350						
		3	0.168	0.0160	0.00268						
		4	0.162	0.0018	0.00029						
		5	0.156	0.0163	0.00254						
		6	0.150	0.0300	0.00450						
	TOTAL			0.7940	0.13714	0.17	251.6	0.77	0.1745166	7522.9	794.40
PAINT & ALLIED PRODUCTS		1	0.180	0.0513	0.00923						
		2	0.174	0.0018	0.00031						
		3	0.168	0.0434	0.00730						
		4	0.162	0.0007	0.00011						
		5	0.156	0.0244	0.00380						
		6	0.150	0.0062	0.00092						
	TOTAL			0.1276	0.02166	0.14	250.1	0.60	0.1404550	1526.8	19.84
LEATHER TANNING & INDUSTRIAL PRO		1	0.180	0.0199	0.00358						
		2	0.174	0.0221	0.00385						
		3	0.168	0.0000	0.00000						
		4	0.162	0.0151	0.00244						
		5	0.156	0.0136	0.00212						
		6	0.150	0.0019	0.00028						
	TOTAL			0.0726	0.01227	0.03	237.8	0.60	0.0300525	427.1	3.15
LIVESTOCK & LIVESTOCK PRODUCTS		1	0.180	0.0129	0.00233						
		2	0.174	0.0092	0.00161						
		3	0.168	0.0024	0.00040						
		4	0.162	0.0049	0.00080						
		5	0.156	0.0054	0.00084						
		6	0.150	0.0150	0.00224						
	TOTAL			0.0498	0.00821	0	42.8	0.54	0	3135.5	13.90

MISC. AGRICULTURAL PRODUCTS	1	0.180	0.0129	0.00233						
	2	0.174	0.0092	0.00161						
	3	0.168	0.0024	0.00040						
	4	0.162	0.0049	0.00080						
	5	0.156	0.0054	0.00084						
	6	0.150	0.0150	0.00224						
TOTAL			0.0498	0.00821	0.02	72.9	0.48	0.0200057	4321.6	17.03
AGRI., FOREST., & FISH. SERVICE	1	0.180	0.0714	0.01286						
	2	0.174	0.0265	0.00462						
	3	0.168	0.0386	0.00649						
	4	0.162	0.0017	0.00028						
	5	0.156	0.0379	0.00591						
	6	0.150	0.1801	0.02702						
TOTAL			0.3563	0.05717	0	350.3	0.48	0	2112.2	57.96
SYNTHETIC RUBBER	1	0.180	0.0337	0.00607						
	2	0.174	0.0005	0.00009						
	3	0.168	0.0143	0.00240						
	4	0.162	0.0030	0.00049						
	5	0.156	0.0003	0.00004						
	6	0.150	0.0200	0.00300						
TOTAL			0.0719	0.01210	0.02	242.5	0.61	0.0200357	445.9	3.29
CELL & NON-CELL MAN-MADE FIBERS	1	0.180	0.0337	0.00607						
	2	0.174	0.0005	0.00009						
	3	0.168	0.0143	0.00240						
	4	0.162	0.0030	0.00049						
	5	0.156	0.0003	0.00004						
	6	0.150	0.0200	0.00300						
TOTAL			0.0719	0.01210	0.03	299.5	0.61	0.0300663	2103.7	15.53
PLASTICS MATERIALS & RESINS	1	0.180	0.0337	0.00607						
	2	0.174	0.0005	0.00009						
	3	0.168	0.0143	0.00240						
	4	0.162	0.0030	0.00049						
	5	0.156	0.0003	0.00004						
	6	0.150	0.0200	0.00300						
TOTAL			0.0719	0.01210	0.25	225.4	0.61	0.2504159	1692.7	12.49
PAPERBOARD CONTAINERS & BOXES	1	0.180	0.0283	0.00510						
	2	0.174	0.0201	0.00349						

	3	0.168	0.0001	0.00002						
	4	0.162	0.0080	0.00130						
	5	0.156	0.0035	0.00054						
	6	0.150	0.0000	0.00000						
TOTAL			0.0600	0.01046	0.24	301.9	0.60	0.2404545	4070.7	25.54
FERTILIZERS & MISC. AGRI PROD	1	0.180	0.0487	0.00877						
	2	0.174	0.0000	0.00000						
	3	0.168	0.0280	0.00471						
	4	0.162	0.0003	0.00005						
	5	0.156	0.0024	0.00038						
	6	0.150	0.0203	0.00304						
TOTAL			0.0997	0.01694	1.44	213.6	0.60	1.4431265	1280.9	13.02
MISC CHEMICAL PRODUCTS	1	0.180	0.0525	0.00944						
	2	0.174	0.0000	0.00000						
	3	0.168	0.0031	0.00052						
	4	0.162	0.0163	0.00264						
	5	0.156	0.0022	0.00034						
	6	0.150	0.0271	0.00407						
TOTAL			0.1012	0.01701	8.41	213.2	0.60	8.4283010	1583.4	16.16
INDUSTRIAL ORG & INORG CHEMICALS	1	0.180	0.0525	0.00944						
	2	0.174	0.0000	0.00000						
	3	0.168	0.0031	0.00052						
	4	0.162	0.0163	0.00264						
	5	0.156	0.0022	0.00034						
	6	0.150	0.0271	0.00407						
TOTAL			0.1012	0.01701	2.37	247.4	0.60	2.3759846	6735.5	68.75
CHEM & FERT MINERAL MINING	1	0.180	0.0160	0.00288						
	2	0.174	0.0006	0.00010						
	3	0.168	0.0104	0.00175						
	4	0.162	0.0333	0.00539						
	5	0.156	0.0004	0.00006						
	6	0.150	0.0000	0.00000						
TOTAL			0.0607	0.01019	0.05	278.1	0.58	0.0500821	364.2	2.15
STONE AND CLAY MINING AND QUARRY	1	0.180	0.0132	0.00238						
	2	0.174	0.0012	0.00021						
	3	0.168	0.0152	0.00255						
	4	0.162	0.0529	0.00857						

	5	0.156	0.0003	0.00005						
	6	0.150	0.0000	0.00000						
TOTAL			0.0828	0.01376	19.84	325.1	0.58	19.891457	1565	12.49
ELECTRIC UTILITIES	1	0.180	0.0427	0.00769						
	2	0.174	0.0044	0.00077						
	3	0.168	0.0058	0.00097						
	4	0.162	0.0228	0.00370						
	5	0.156	0.0020	0.00031						
	6	0.150	0.0332	0.00498						
TOTAL			0.1109	0.01841	22.84	158.5	0.65	22.883319	7352.5	87.98
PETRO REFINING & RELATED INDUS	1	0.180	0.0465	0.00837						
	2	0.174	0.0040	0.00069						
	3	0.168	0.0000	0.00000						
	4	0.162	0.0068	0.00110						
	5	0.156	0.0012	0.00019						
	6	0.150	0.0322	0.00483						
TOTAL			0.0907	0.01518	29.57	102.6	0.60	29.597635	5453.6	49.68
GAS UTILITIES	1	0.180	0.0427	0.00769						
	2	0.174	0.0044	0.00077						
	3	0.168	0.0058	0.00097						
	4	0.162	0.0228	0.00370						
	5	0.156	0.0020	0.00031						
	6	0.150	0.0332	0.00498						
TOTAL			0.1109	0.01841	6.81	106.8	0.65	6.8187030	3637.3	43.52
CRUDE PETRO & NATURAL GAS	1	0.180	0.0454	0.00817						
	2	0.174	0.0023	0.00040						
	3	0.168	0.0267	0.00449						
	4	0.162	0.1347	0.02182						
	5	0.156	0.0114	0.00178						
	6	0.150	0.0005	0.00008						
TOTAL			0.2210	0.03673	0.92	119.3	0.62	0.9224996	3594.7	81.87
COAL MINING	1	0.180	0.0108	0.00194						
	2	0.174	0.0018	0.00031						
	3	0.168	0.0056	0.00094						
	4	0.162	0.0428	0.00693						
	5	0.156	0.0051	0.00080						
	6	0.150	0.0000	0.00000						

	TOTAL			0.0661	0.01093	0.73	394.8	0.58	0.7318265	3632.9	23.02
WATER & SANITARY SERVICES		1	0.180	0.0358	0.00644						
		2	0.174	0.0037	0.00065						
		3	0.168	0.0048	0.00081						
		4	0.162	0.0191	0.00310						
		5	0.156	0.0016	0.00026						
		6	0.150	0.0278	0.00418						
	TOTAL			0.0929	0.01543	1.68	198.2	0.65	1.6833396	865.3	8.68
FEDERAL GOVERNMENT ENTERPRISES		1	0.180	0.0774	0.01393						
		2	0.174	0.0434	0.00755						
		3	0.168	0.0152	0.00255						
		4	0.162	0.1329	0.02153						
		5	0.156	0.0065	0.00101						
		6	0.150	0.0000	0.00000						
	TOTAL			0.2754	0.04658	1.49	786.8	0.68	1.5271337	15689	496.95
RAILROADS & RELATED SERVICES		1	0.180	0.0000	0.00000						
		2	0.174	0.0000	0.00000						
		3	0.168	0.0181	0.00303						
		4	0.162	0.0000	0.00000						
		5	0.156	0.0000	0.00000						
		6	0.150	0.0000	0.00000						
	TOTAL			0.0181	0.00303	2.29	416.7	0.75	2.2921710	10648	24.23
AIR TRANSPORTATION		1	0.180	0.0308	0.00555						
		2	0.174	0.0000	0.00000						
		3	0.168	0.0205	0.00344						
		4	0.162	0.0183	0.00296						
		5	0.156	0.0020	0.00031						
		6	0.150	0.0506	0.00759						
	TOTAL			0.1222	0.01985	1.86	383.3	0.68	1.8696246	8513	114.93
TRUCK TRANSPORTATION & WHAREHOUS		1	0.180	0.0253	0.00455						
		2	0.174	0.0052	0.00090						
		3	0.168	0.0187	0.00314						
		4	0.162	0.0026	0.00042						
		5	0.156	0.0019	0.00029						
		6	0.150	0.0209	0.00314						
	TOTAL			0.0745	0.01244	5	435.2	0.55	5.0148861	22070	150.98

MISC TRANSPORT & RELATED SVC	1	0.180	0.0308	0.00555						
	2	0.174	0.0000	0.00000						
	3	0.168	0.0205	0.00344						
	4	0.162	0.0183	0.00296						
	5	0.156	0.0020	0.00031						
	6	0.150	0.0506	0.00759						
TOTAL			0.1222	0.01985	2.77	363.5	0.68	2.7835930	10167	137.25
STATE & LOCAL GOV'T ENTERPRISE	1	0.180	0.0477	0.00859						
	2	0.174	0.0292	0.00508						
	3	0.168	0.0219	0.00368						
	4	0.162	0.1154	0.01869						
	5	0.156	0.0000	0.00000						
	6	0.150	0.0000	0.00000						
TOTAL			0.2142	0.03604	6.51	233.2	0.68	6.5472059	5042.6	123.58
HOTELS; PERSONAL & REPAIR(X AUTO	1	0.180	0.0190	0.00341						
	2	0.174	0.0095	0.00166						
	3	0.168	0.0116	0.00195						
	4	0.162	0.1377	0.02231						
	5	0.156	0.1813	0.02829						
	6	0.150	0.0113	0.00170						
TOTAL			0.3705	0.05933	2.05	355.4	0.71	2.0806885	18334	772.26
AUTO REPAIR & SERVICE	1	0.180	0.0219	0.00394						
	2	0.174	0.0285	0.00496						
	3	0.168	.0000	0.00001						
	4	0.162	0.0100	0.00163						
	5	0.156	0.0021	0.00033						
	6	0.150	0.0000	0.00000						
TOTAL			0.0626	0.01087	10.03	259.7	0.59	10.046703	10687	68.53
RADIO & T.V. BROADCASTING	1	0.180	0.0817	0.01470						
	2	0.174	0.0000	0.00000						
	3	0.168	0.0126	0.00211						
	4	0.162	0.0003	0.00006						
	5	0.156	0.0058	0.00090						
	6	0.150	0.0217	0.00325						
TOTAL			0.1220	0.02102	1.82	353.7	0.74	1.8300144	2699.5	42.00
AMUSEMENTS	1	0.180	0.0290	0.00522						
	2	0.174	0.0259	0.00450						

		3	0.168	0.0000	0.00000						
		4	0.162	0.0007	0.00011						
		5	0.156	0.0006	0.00009						
		6	0.150	0.0531	0.00797						
	TOTAL			0.1092	0.01788	0.11	349	0.62	0.1104256	7522.4	83.40
MED & ED SERVICES; NON-PROFIT		1	0.180	0.1551	0.02792						
		2	0.174	0.0197	0.00342						
		3	0.168	0.0816	0.01371						
		4	0.162	0.0164	0.00265						
		5	0.156	0.2093	0.03266						
		6	0.150	0.1985	0.02977						
	TOTAL			0.6805	0.11013	1.33	514.9	0.74	1.3858093	73917	6023.89
WHOLESALE & RETAIL TRADE		1	0.180	0.0146	0.00263						
		2	0.174	0.0020	0.00035						
		3	0.168	0.0793	0.01332						
		4	0.162	0.0788	0.01277						
		5	0.156	0.0000	0.00000						
		6	0.150	0.0000	0.00000						
	TOTAL			0.1747	0.02906	30.09	425	0.58	30.305573	155504	2621.35
FINANCE & INSURANCE		1	0.180	0.1190	0.02142						
		2	0.174	0.0794	0.01381						
		3	0.168	0.1426	0.02396						
		4	0.162	0.0201	0.00326						
		5	0.156	0.0000	0.00000						
		6	0.150	0.0000	0.00000						
	TOTAL			0.3611	0.06246	14.8	399	0.62	15.028667	52550	2034.89
COMMUNICATIONS (X RADIO & TV)		1	0.180	0.0416	0.00750						
		2	0.174	0.0000	0.00000						
		3	0.168	0.2922	0.04909						
		4	0.162	0.0130	0.00210						
		5	0.156	0.0114	0.00178						
		6	0.150	0.0018	0.00027						
	TOTAL			0.3600	0.06073	1.46	391	0.74	1.4856552	20869	937.88
REAL ESTATE & RENTAL		1	0.180	0.0928	0.01670						
		2	0.174	0.0000	0.00000						
		3	0.168	0.0354	0.00595						
		4	0.162	0.0034	0.00055						

	5	0.156	0.0021	0.00033						
	6	0.150	0.0000	0.00000						
TOTAL			0.1337	0.02352	37.93	48.5	0.62	37.956830	14307	208.67
MAINTENANCE & REPAIR CONST.	1	0.180	0.0279	0.00502						
	2	0.174	0.0006	0.00010						
	3	0.168	0.0175	0.00294						
	4	0.162	0.0361	0.00585						
	5	0.156	0.0004	0.00006						
	6	0.150	0.0000	0.00000						
TOTAL			0.0825	0.01398	6.81	494.2	0.50	6.8335198	30432	212.67
BUSINESS SERVICES	1	0.180	0.1041	0.01874						
	2	0.174	0.0461	0.00802						
	3	0.168	0.0064	0.00108						
	4	0.162	0.0546	0.00884						
	5	0.156	0.0122	0.00190						
	6	0.150	0.0048	0.00073						
TOTAL			0.2282	0.03930	28.05	421.7	0.47	28.268502	48991	904.98
EATING & DRINKING PLACES	1	0.180	0.0046	0.00082						
	2	0.174	0.0079	0.00138						
	3	0.168	0.0693	0.01164						
	4	0.162	0.0003	0.00005						
	5	0.156	0.0039	0.00061						
	6	0.150	0.0016	0.00024						
TOTAL			0.0876	0.01474	0.98	322	0.72	0.9833495	26434	280.58
					391.16			392.62687	910012.	21451.3
					999.96			611.57349	910012.	0.02357
								1004.2003		
								1.0042405	IMPACT ON STONE & CLAY	