AN ANALYSIS OF THE DETERMINANTS OF ROUTINE PERSONAL SERVICES EMPLOYMENT

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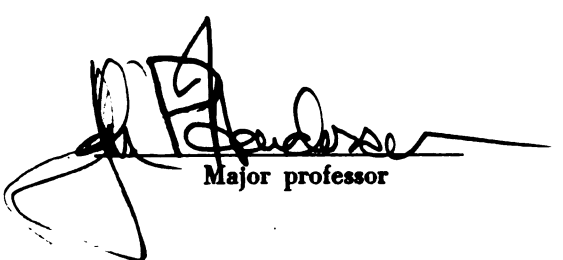

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ABSTRACT

AN ANALYSIS OF THE DETERMINANTS OF ROUTINE PERSONAL SERVICES EMPLOYMENT

by David I. Verway

Among the disadvantaged occupations is a group associated with routine personal service industries: those industries which produce services that are easy substitutes for certain processes in the household, or home production. These industries are private households; laundries, laundry services, and cleaning and dyeing plants; beauty shops; barber shops; shoe repair shops, shoeshine parlors, and hat cleaning shops; and pressing, alteration, and garment repair shops.

Using two-stage least squares regression on areal cross section data from the 1950 and 1960 Population Censuses with states as units of observation, this research demonstrates that there is a high positive association between the supply of disadvantaged labor and employment in certain of the disadvantaged occupations associated with routine personal services industries. The regression results suggest that this association is high for both males and females employed in the private households occupations as a whole and for both males and females employed in the disadvantaged occupations in the laundry and dry cleaning industries, or as laundry and dry cleaning operatives.

Employment as male barbers and male cobblers is highly associated with the supply of male disadvantaged labor. For occupations designated as babysitters, beauticians, and live-in domestics, the results are less clear cut.

Supply is only one of the forces considered. The opposite of the coin of the factors determining routine personal services employment is, of course, demand. One very relevant factor in the demand for routine personal services is the opportunity cost of home production. This factor is formal recognition that certain members of the household may find that their labor is worth more in the market than in the home. In other words, the optimum family decision may involve the wife's becoming employed outside of the home, and the employment of a domestic or otherwise having the household chores to release the wife for market labor. The variables selected to represent the opportunity cost aspect in this study are, for females, average weekly income outside of the private households industry as a percentage of average weekly income for the particular routine personal service occupation; and for males, average weekly income as a percentage of average weekly income for the particular routine personal service occupation.

The results indicate that opportunity cost is probably a relevant factor in the demand for female live-out domestics and that income distribution is a relevant factor in the regressions particularly those pertaining to males employed

in the private households industry. The lodgings and restaurant industries are important elements in the demand for employees in laundering, cleaning and dyeing occupations and male white collar employment is a significant factor in the demand for barbers. White collar employment is also an element in the demand for cobblers. The results for beauticians and hairdressers were largely insignificant, making it impossible to render any conclusion for those occupations.

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By

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David I. Verway

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INTRODUCTION

This thesis contains the results of statistical tests of cross-section models of the supply of and demand for labor for routine personal service occupations in the United States. The hypothesis is advanced that the supply of routine personal service labor is a function of certain underlying conditions in the labor market: the supply of this labor is a function of unemployment, income distribution, wage structure, and the availability of employment alternatives. As for demand, it is hypothesized that wage structure and income distribution along with other factors such as female labor force participation have a bearing on the rates of employment in the various routine personal service occupations.

The statistical models are cross-sectional, with states (48) and the District of Columbia as units of observation. The data on employment in routine personal service occupations, as well as the bulk of the other statistical materials assembled for the models, are adapted from the Decennial Population Censuses for 1950 and 1960. There are, in fact, two different methods for adapting these data for the purposes intended here. One, the more common, is to use the observations for points in time, either 1950 or 1960. The other involves the use of data pertaining to changes in

the various magnitudes for each state between 1950 and 1960. In the present study, these variables are calculated on the basis of 1960 as a percentage of 1950. The statistical methodology employed is two-stage least squares.

Very briefly, the outline of this thesis is as follows. Routine personal services are defined in Chapter I. Chapter II is a review of the literature. In Chapter III, the theoretical underpinnings of the demand for and supply of routine personal services are set forth, while Chapter IV is a discussion of the limitations in some of the data and the means of adapting to them. The statistical model is formulated in Chapter V and the results are presented in Chapter VI. Chapter VII is a summary.

CHAPTER I

ROUTINE PERSONAL SERVICES DEFINED

The term routine personal services was one employed by Stigler to designate those industries which produce services of a routine nature which ". . . can be performed by individuals with little or no formal training, so that many consumers perform these services for themselves."[1] In other words, members of the family can perform these services in the home. Stigler designated as routine personal service industries the following: domestic service; laundering, dyeing, and cleaning services; housekeeping or housing services (hotels and lodging services); and barber and beautician services.

In this study the definition of routine personal services differs from Stigler's definition in these two respects: pressing and alteration services and shoe repair services are included in the definition, and hotel and lodging services are excluded. Pressing and alteration services are included because in most families someone can perform these services. A large investment in equipment is not required. These services are included also for the

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[1]George J. Stigler, Trends in Employment in the Service Industries (Princeton: Princeton University Press, 1956), p. 90.

pragmatic reason that in some of the data used in this study, the statistics for pressing and alteration service are inseparable from those for laundering, cleaning, and dyeing services.

Shoe repair services are included in the present study in the interest of inclusiveness and completeness. For while it is true that professional shoe repair requires specialized machinery, some member of the average household can accomplish shoe repairing of a sort.

Hotel and lodging services are excluded from the definition of routine personal services because by their nature they are generally not easily available otherwise and because their use involves being away from home: similar services are not provided in the home. Lodging is routine only in the sense that many of the employees providing lodging services need little formal training. Lodging services are excluded also for the similar reason that pressing and alteration services are included: the data do not lend themselves to the method of analysis employed. Hotels tend to be concentrated in large cities, and their services are used by people who, by and large, are not nearby residents; hence, a state-by-state study of factors leading to high or low consumption of lodging services would not be very meaningful.

In this study, therefore, the following industries, listed with their Standard Industrial Classification (SIC)

number, will be defined as "routine personal service industries": the private households industry, SIC 8811; the laundries, laundry services, and cleaning and dyeing plants subgroup, SIC 721; beauty shops, SIC 7231; barber shops, SIC 7241; shoe repair shops, shoe shine parlors, and hat cleaning shops, SIC 7251; and pressing, alteration and garment repair shops, SIC 7271. According to the published definitions, SIC 8811

> . . . includes private households which employ workers who serve on or about the premises in occupations usually considered as domestic service. Households classified in this major group may employ individuals, such as cooks, laundresses, maids, sitters, butlers, personal secretaries, and managers of personal affairs; and outside workers, such as gardeners, caretakers, and other maintenance workers. The households of farming establishments are classified in Major Group 01 . . . .[1]

SIC 721 includes family and commercial power laundries, SIC 7211; hand laundries, SIC 7212; linen supply establishments, SIC 7213; diaper service establishments, SIC 7214; dry cleaning and dyeing plants, except rug cleaning, SIC 7216; rug cleaning and repairing plants, SIC 7217; and industrial launderers, SIC 7218. SIC 7231 includes "establishments primarily engaged in furnishing beauty services. This industry also includes combination beauty and barber shops."[2]

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[1]U. S. Bureau of the Budget, Standard Industrial Classification Manual, 1967 (Washington, D. C.: Government Printing Office, 1967), p. 307.

[2]Ibid., p. 279.

SIC 7251 includes barber colleges as well as barber shops while SIC 7251 encompasses, as the name indicates, shoe repair shops, shoe shine parlors, and hat cleaning and blocking shops. Besides garment pressing, alteration and repair shops, as indicated by its name, SIC 7271 includes valet service, fur cleaning, repairing and storage, and cleaning and laundry pick-up stations not owned by launderers or dry cleaners. Though it might be advantageous for purposes of this research to exclude some of these groups from the definition of routine personal services, the data that have to be relied upon for the analysis are not available in sufficient detail to allow such exclusions. For example, hat cleaning and blocking is a service not easily performed in the home since blocking requires specialized equipment. But hat cleaning and blocking data cannot be separated from those for other establishments in SIC 7251.

The industrial classification system employed by the Bureau of the Census for its decennial Census of Population (CEN) differs in several important respects from the SIC. Though it corresponds fairly closely with the SIC, it is more aggregative for most industries. The industry private households in CEN is the same as SIC 8811 in terms of definition but bears the code designation industry K.

For the laundry, laundry services, and cleaning and dyeing plants subgroup (SIC 721), there is no separate detail. In fact, SIC 721 is combined with SIC 7271 in the CEN to form CEN 828, known simply as laundering, cleaning, and

dyeing services. CEN 838 is composed of barber shops (SIC 7241) and beauty shops (SIC 7231). For shoe repair shops, the CEN definition (CEN 836) and the SIC definition are the same.

In addition to classifying employed persons according to the kind of establishment in which they are employed, the Census Bureau in its CEN classifies them according to the kind of work they do. The kinds of occupations that are relevant to this study, routine personal service occupations, are those that are of a routine nature in the routine personal service industries. Excluded from this investigation of routine personal service occupations are personnel, such as managers, and other white collar workers, such as office employees in a large laundry firm, who may be in the industry but whose occupations do not involve performing routine personal chores. Also excluded are employees, such as laundry operatives in a captive laundry of a large hotel or hospital, who are performing jobs of a routine nature, similar to the routine jobs in routine personal service industries, but in industries outside of routine personal services.

A characteristic of the private household group of occupations is that it is contained entirely within the private households industry. That is to say, any person who is employed in a private households occupation is also, by definition, employed in the private households industry. That is not to say that there are not occupations in the

private households industry that are not private households occupations.[1]

Included in the private households occupation groups are babysitters, private household, CEN 801; housekeepers, private household, CEN 802; laundresses, private household, CEN 803; and private household workers, not elsewhere classified, CEN P.

The list of individual occupations that were included in the private households occupations group in 1960 includes a host of occupations, most of them involving the performance of tasks familiar in the typical household. These include cook, nursemaid, babysitter, laundress, ironer and kitchen worker. Others, less common, are governess, companion, and steward on a private yacht. Occupations included in the private households industry but not in the private households occupation include captain of a private yacht, chauffeur, gardener, and domestic nurse.

Obviously, some of the occupations in the private households industry or occupation are far from routine. Being the captain of a yacht, for example, is not a service that is easily performed in the ordinary private household. Inasmuch as there is no way to alter the CEN data so as to

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[1]Nor is it to say that there are not occupations outside of the private households occupation group that are similar to ones in it. For example, the occupation butler may be in the private households occupation group as well as the lodgings industry. A hotel butler is not in the private households occupation nor industry, but a butler employed in a private household is.

make them correspond exactly with a strictly logical definition of routine personal services, as the term is defined here, there is an irreconcilable data limitation. It seems improbable, however, that this limitation is serious inasmuch as these atypical routine personal service occupations are probably of little quantitative importance in the statistics.

CEN 674 identifies laundry and dry cleaning operatives. These occupations involve the performance of tasks such as ironer, marker, folder, presser, spotter, and others that are required in the operation of a commercial laundry or dry cleaning establishment. While it seems reasonable to assume that in the statistics themselves, most of the persons classified in occupation group CEN 674 are also employed in industry CEN 828, it should be noted that some persons in CEN 674 may be employed in hospital laundries or captive laundries in other kinds of businesses. One small set of occupations in this group is related to another one of the routine personal services. This set of occupations is: hat blocker, hat cleaner, hat finisher, hat former, hat ironer, hat presser, hat renovator, hat sizer, hat steamer, and hatter. These are occupations found in CEN 836, the shoe repair, shoeshine, hat cleaning, and hat blocking industry.

The designation for occupations falling under the heading barbers is CEN 814. Occupations found in this group and in the corresponding industry are: barber, manager--barber

college, manager--barbershop, and trichologist. Occupations in hairdressers and cosmetologists, CEN 843, include beautician, cosmetologist, manager--beauty parlor, and manager--beauty school. It may be worth observing that there are occupations, like electrologist, that are found in beauty shops but are not included as routine personal service occupations. Moreover, there are within both occupation groups CEN 814 and CEN 843 occupations such as teachers in barber colleges or beauty operators' schools that are not included in the corresponding industry CEN 838.

The group designated as CEN 515 pertains to shoemakers and repairers, except factory. This group includes occupations in shoe repair shops like cobbler, dyer, helper, and shoe repair shop proprietor.

The question of when a service is routine, or what determines if it is routine, may be raised about a number of the personal services. For example, when a woman has her hair styled by a French hairdresser in a beauty salon, she may or may not consider the service a routine one. In a broad sense, however, hairdressing can be done in the average home by nonprofessionals using equipment available at any drugstore. In the same way, Chinese laundrying is not likely to be done in the average home, but laundrying is. All the services listed as routine have the same basic characteristic of being able to be performed in the home, though not necessarily in the specific way, nor with the

identical results, that a trained professional might perform them.

It is also obvious that some of the routine personal service industries designated above provide services that are not being utilized as substitutes for their production in the home by family members. Industrial launderers, for example, by definition supply services to other businesses such as supplying linen to restaurants and hotels. The necessity for including these industries stems from the necessity to utilize CEN occupational data that contain occupations included in all of these industries.

CHAPTER II

PREVIOUS STUDIES OF ROUTINE PERSONAL SERVICES

This chapter is a review of some previous studies of the industries included in routine personal services. Those for the household industry reveal what is fairly obvious: that persons employed as domestics are generally at the lower end of the social and economic strata. The other routine personal service industries have not been the subject of much previous research.

The material in this chapter is arranged according to industry. The household industry is discussed first; then the laundry, dry cleaning, pressing and related industries; and finally beauty shops and barber shops. There apparently has been no previous research on the shoe repair industry.

Private Households

In 1897 Professor Lucy Maynard Salmon's first edition of Domestic Service[1] appeared. This work is evidently the first major statistical analysis of the employment of domestic servants in this country.

Professor Salmon's study was addressed to the question of

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[1]Lucy Maynard Salmon, Domestic Service (8th ed.; New York: The Macmillan Company, 1911).

> . . . whether household employments are justified in resenting any intrusion into their domain, whether the individual employer is right in considering household service exclusively a personal affair.

She continues,

> An answer to the question may be of help in deciding whether the difficulties that are found in the present system of domestic service arise in every case necessarily from the personal relations which exist between employer and employee, or are largely due to economic conditions over which the individual employer has no control. Still further, the conclusions reached must determine somewhat the nature of the forces to be set in motion to lessen these difficulties.[1]

Salmon sent questionnaires to ". . . all housekeepers and their employees who can be communicated with by the members of the Classes [Vassar] of '88 and '89 and the Department of History."[2] Relying upon the 3,550 replies to these questionnaires, data from the Eleventh Census of the United States, and various other published materials, Salmon derived three sets of propositions relating to "economic phases of domestic service." The first group of propositions concerns national and racial origin of domestics.

> (1) A large proportion of the domestic employees in the United States are of foreign birth. . . . In nine states and territories the number of foreign born domestic employees exceeds the number of native born white employees, in sixteen about one half of the white domestic employees are of foreign birth, in twenty-four states and territories the number of native born white employees largely exceeds the foreign born, while in fifteen states colored employees are in excess.

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[1] Ibid., pp. 5-6.
[2] Ibid., p. 305.
[3] Ibid., pp. 74-76.

(2) The converse of the preceding proposition is also true--the concentration of women of foreign birth engaged in remunerative occupations is on domestic service.[1]

(3) The foreign born population as a class seek the large cities.[2]

(4) The foreign countries having the largest absolute representation in the largest cities are Ireland, Germany, Great Britain, Sweden, and Canada and Newfoundland.[3]

(5) The foreign countries having the largest absolute and relative representation in domestic service are, in order, Ireland, Germany, Sweden and Norway, Great Britain, and Canada and Newfoundland.[4]

The conclusion reached from this set of propositions is that

> . . . with the exception of the sections employing colored servants, domestic service is as a rule performed by persons of foreign birth belonging to a few well-defined classes as regards nationality, who prefer city to country life.[5]

A second set of propositions relates to the influences of urbanization, the general level of wealth, and the availability of alternative employments.

(1) The number of domestic servants is absolutely and relatively small in agricultural and sparsely settled states.[6]

(2) The number of domestic servants is absolutely and relatively large in those states containing large urban populations.[7]

(3) The aggregate wealth of a state has little appreciable effect on the relative number of domestic servants employed.[8]

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[1] Ibid., p. 77.
[2] Ibid.
[3] Ibid., p. 78.
[4] Ibid.
[5] Ibid., p. 80.
[6] Ibid.
[7] Ibid.
[8] Ibid., p. 82.

> (4) The per capita wealth of a state has, with the exception of the Southern states as a class, a somewhat important bearing on the relative number of servants employed.[1]
>
> (5) Domestic employees are found in the largest numbers, relatively and absolutely, in the large cities.[2]
>
> (6) The proportion of persons engaged in domestic service varies with geographical location and prevailing industry.[3]
>
> (7) Neither per capita wealth nor aggregate wealth has an appreciable influence in determining the number of servants in cities.[4]
>
> (8) The prevailing industry of a city, rather than its population or wealth, determines the number of domestic employees. . . . several of the manufacturing cities rank comparatively high in per capita wealth.[5]

The general inference made from these propositions is that

> In states containing a relatively high urban population it is possible for wealth to command the services of a large proportion of persons for work in domestic service. But in cities where wealth comes into competition with manufacturing industries the proportion of domestic servants is small. Where such competition does not exist the proportion is large. In other words, persons are willing to enter domestic service for a consideration in cities where no other avenues of work are open to them with the qualifications they possess. They are unwilling to do so where such openings do exist.[6]

The third and final set of propositions relating to the economic aspects of domestic service is about wages and hours of work.

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[1] Ibid.

[2] Ibid., p. 83.

[3] Ibid., p. 84.

[4] Ibid., p. 86.

[5] Ibid., p. 87.

[6] Ibid., p. 88.

> (1) Wages in domestic service vary in different sections according to the economic conditions of the several localities.[1]
>
> (2) Skilled labor [within domestic service] commands higher wages than unskilled labor.[2]
>
> (3) The foreign born in the domestic service receive higher wages than the native born. . . . An explanation is found in three facts: (1) the preference of the foreign born for the large cities, where wages in domestic service are higher than in the country; (2) the large proportion of [N]egroes among the native born; (3) the relatively better class of foreign born than of native born women who enter domestic service.[3]
>
> (4) The wages of men engaged in domestic service are higher than the wages of women.[4]
>
> (5) A tendency is found towards an [historical] increase in wages . . . .[5]
>
> (6) The wages received in domestic service are relatively and sometimes absolutely higher than the average wages received in other wage-earning occupations open to women. [This seemingly peculiar statement means that net wages, after room and lodging, are higher for domestics than for women in other occupations. For some domestics, money wages alone are higher.][6]

Salmon gives a corollary to this proposition:

> High wages alone are not sufficient to counterbalance the inducements offered in other occupations where wages are relatively or absolutely lower but whose special advantages are deemed more desirable.[7]
>
> (7) The wages paid in domestic service are on the average high, but the occupation offers few opportunities for advancement in this direction.[8]

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[1] Ibid.

[2] Ibid., p. 89.

[3] Ibid., pp. 91-92

[4] Ibid., p. 92.

[5] Ibid.

[6] Ibid., p. 93.

[7] Ibid., p. 103.

[8] Ibid.

> (8) The amount of time unemployed [the unemployment rate] is less in domestic service than in nearly every other occupation.[1]
>
> (9) High wages are maintained without the aid of strikes or combinations on the part of the employees.[2]

From this set of propositions and the underlying data Salmon deduces

> . . . the conformity of wages in domestic service to certain general economic laws, the fact that the wage factor alone does not determine the number of persons in the occupation, and the existence of a few conditions which affect, perhaps unconsciously, the willingness of the women to engage in this work.[3]

On the face of them, except for number seven, these propositions would appear to indicate that domestic service is a most desirable occupation from the employee's perspective. At the end of the last century this appeared to be a better than average paying job for women and the element of job security was favorable. That the contrary is true, that domestic service was not deemed a desirable occupation emerges from answers to the questionnaires sent out. Out of 562 answers by employees who were asked the question "What reasons can you give why more women do not choose housework as a regular employment?" inferior social status was given as a reason by 157 employees.[4] There was obviously a strong social stigma attached to this type of employment. An almost equal number of replies pertained to confinement on evenings and Sundays along with other

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[1] Ibid., p. 104.

[2] Ibid.

[3] Ibid., p. 106.

[4] Ibid., p. 140.

manifestations of lack of independence in domestic service. Another serious objection to this employment was irregularity in working hours.

Shortly after the turn of the century, another study of domestic service was carried out by Gail Laughlin.[1] This study involved a questionnaire approach similar to that employed by Salmon but was less ambitious than its predecessor. The results are so remarkably similar that no good purpose will be served by reporting them here in their entirety. Three paragraphs of Laughlin's report are worth reproducing here because of their incisiveness with respect to the objections to employment in domestic service.

> In speaking of the reasons which prevent women from entering domestic service, Dean Marion F. Talbot, of the University of Chicago, expressed the opinion that the objections already referred to, viz, indefiniteness of hours, unfit sleeping accommodations, the imposition of restrictions, etc., were causes, of which social position was the result. The reasoning is valid, but these conditions are themselves results from an underlying cause. That underlying cause is the basic principle upon which the whole system of domestic service, as it exists to-day, rests; and that principle is that in domestic service it is the person who is hired and not, distinctively, the labor of the person. In all other occupations it is labor which is contracted for; in domestic service it is, in effect, at least, the laborer. In other occupations the contract is for the performance of certain specified services; in domestic service the contract is, usually, for the entire time of the laborer, who is then expected to perform, not only certain labor which has been specified, but, in addition to that, is expected to perform whatever services may be required; who is expected, in short, to be at all times subject to the call and direction of the employer. . . . .

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[1]Gail Laughlin, "Domestic Service," Report of the Industrial Commission (Washington: U. S. Government Printing Office, 1901).

> The services demanded, in many cases, of domestic workers are in accordance with these views. Frequently, perhaps usually, the general servant is expected not only to cook, wait on table, and perform such other duties as may be included among legitimate household duties, but she is expected also to run on errands to any part of the house for any member of the family, and to perform various other personal services for any member.
>
> Household labor has not had applied to it the economic principles which have been applied to other occupations. It has not been put on a business basis. The relation of employer and employee is still regarded as largely a personal relation. The vast majority of household workers are wives, who give their services on a purely personal basis. This fact has had a considerable effect in making the relations of hired household employees with their employers more personal than economic. But a personal relation between employer and employee inevitably becomes the relation of superior and inferior, rather than a contract between equals, and this is what has developed in domestic service. To remove the social stigma from domestic service, and thus to attract into that service a larger number of intelligent employees, household labor must be established on a business basis.[1]

A study of more specialized nature was Isabel Eaton's "Special Report on Negro Domestic Service in the Seventh Ward Philadelphia." Eaton like other students of the subject noted that Negroes loomed in disproportionate numbers in domestic service and made this observation.

> The probable reason for this disproportion is not far to seek when we remember the unpopularity of domestic service which keeps whites out, and reflect that the colored prejudice which is known to operate against the Negro in nearly all departments of labor

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[1] Ibid., pp. 759-760. It is interesting to note, parenthetically, at this point in the discussion that the National Committee on Household Employment was formed in 1965 partly to act as a ". . . clearinghouse and coordinator for all organizations concerned with upgrading the status of private-household employment . . . ." United States Women's Bureau, 1965 Handbook on Women Workers, Bulletin No. 290 (Washington: U. S. Government Printing Office, 1966), p. 271.

> except drudgery, actually works in his favor in the matter of domestic service, where the competence of Negro waiters and the superior skill of Negro cooks is generally admitted. Hence, Negro labor, following the line of least resistance, flows in enlarged streams into the channel of domestic service.[1]

Noting that domestic service at the turn of the century attracted mainly young persons, Eaton commented:

> The fact that the highest point of excess of youth . . . is reached at twenty-three to twenty-five years is significant, and suggests the query why it is that domestic service so clearly attracts the young of both sexes and of all races. It is safe to say that one of the most prominent determining causes is necessity of immediate income. Many young men and women are obliged by circumstances to undertake some form of work which, while requiring no capital and no particular course of training, still yields an immediate return, which is certain to provide them at least their board and lodging, with a small amount for living expenses. This is the chief reason why the first employment of young men and women just beginning to support themselves is so often "going out to service."[2]

Eaton also finds evidence of color discrimination even within the domestic service industry. Nonwhites evidently receive less pay for the same position as whites. In general the Eaton study corroborates the findings of other authors that employment as a domestic carries with it a social stigma which renders it an occupation that is not eagerly sought after by the typical employable individual.

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[1]Isabel Eaton, "Special Report on Negro Domestic Service in the Seventh Ward Philadelphia," chapter in The Philadelphia Negro (Philadelphia: University of Pennsylvania, 1899), p. 434.

[2]Ibid., p. 443.

In "America's Domestic Servant Shortage," Ethel M. Smith examines the effect of the then new and restrictive immigration law and concludes,

> It seems far more probable that it is the changing occupational status of women in Europe as well as in America that is primarily responsible for the continuing problems of shortage in domestic service wherever it occurs.[1]

Another comment worth repeating here is in regard to status and pay.

> The social stigma, the low wages consequent on this and other things, the isolation of the job, its long hours and its complicated requirements under average conditions have not stood comparison with the regular hours, the better pay, the better social status and the companionship of factory, store, office or telephone exchange. The household and kitchen occupations are the least standardized, the least modernized, the most feudal of all the work in the modern world.[2]

Apparently, by the mid 1920's domestic service had lost its competitive edge with respect to the rate of pay.

Fortune magazine examined "The Servant Problem" in the late 1930's and made more or less the same conclusions regarding the matter as were made in the previous studies. In 1938 Fortune asserted

> On the one hand there are people with money to spend for domestic service. And on the other there are 8,000,000 unemployed. It is an appalling situation. Of that 8,000,000 is it not likely that a large number are highly eligible for domestic service? Why is it not possible for at least 1,000,000 unemployed to find homes with 1,000,000 families in

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[1]Ethel M Smith, "America's Domestic Servant Shortage," Current History, XXVI (May, 1927), p. 218.

[2]Ibid. (Italics supplied.)

> which the wife is overworking herself? And if those 1,000,000 families could not afford full-time wages, would it not be possible for the government (which will help you to build a house, and which is supporting the unemployed anyway) to make up the difference? It is a tantalizing question, and there is an answer to it, and the answer is no. And the reason the answer is no lies with the women, who have not succeeded in solving the servant problem. And the reason they have not solved the servant problem is that they have not struck at the hidden root of it.[1]

George J. Stigler investigated the subject of employment in the private households industry and reported his findings in a National Bureau of Economic Research monograph.[2] His research was primarily concerned with the reasons for the decline in the servant population relative to the population as a whole between 1900 and 1940 in the United States.

Stigler, like Salmon, noted that wealth has no obvious effect upon the number of servants and hypothesized that

> equality of the distribution of income, rather than the amount, may be a factor of considerable importance. A society with relatively many families at both ends of the income scale would provide both a large supply of servants and a large demand.[3]

Stigler examined the racial and geographical characteristics of servants and found that

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[1]"The Servant Problem," Fortune, March, 1938, p. 82.

[2]George J. Stigler, Domestic Servants in the United States 1900-1940, Occasional Paper No. 24 (New York: National Bureau of Economic Research, 1946).

[3]Ibid., p. 6.

> The low social status of domestic service, the absence of vocational or educational requirements, and the discrimination practices in other lines of employment seem adequate to explain the fact that immigrants and [N]egroes have constituted more than half of female servants since 1900 . . . .[1]

There are he finds,

> three levels of use of domestic service. In the South there is a servant for every 10 families, in the northeastern states one for every 14, and elsewhere one for every 20. Since [N]egroes and immigrants have supplied a majority of servants, high levels in the South and along the eastern seaboard are to be expected.[2]

In one of his statistical analyses using data from the 1940 Population Census, Stigler found that average annual earnings of female servants varied positively with city size and negatively with percentage of the servant population classified as non-white. He also found that the distribution of earnings among female servants was relatively unequal compared with service workers, manufacturing operatives and clerical workers. With respect to the length of the workweek, Stigler asserted that "both extremely short and long hours are common in domestic service."[3]

Among factors affecting employment of servants, Stigler discussed family size, female labor force participation, urbanization, family income, household technology (adoption of vacuum cleaners, washing machines and other

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[1] Ibid.

[2] Ibid., p. 9.

[3] Ibid., pp. 19-20.

appliances), manufacture of prepared foods, movement into apartments where upkeep is less, and the decline in boarding houses.

The major results of the study are:

1. $X_1 = 204.1 - \underset{(.32)}{1.58}\ X_2 + \underset{(.81)}{4.38}\ X_3$ R: .731

where X_1 : average 1939 earnings of full time servants outside of cities of population greater than 250,000.

X_2 : percentage of servants who are nonwhite outside of cities of population greater than 250,000, and

X_3 : percentage of servants in cities of population greater than 10,000 but less than or equal to 250,000

The units of observation are the 48 states, and the data are from the 1940 Population Census.

2. An income elasticity of demand for servants of 2.0.

3. A price elasticity of demand of -2.3.

Both two and three are based upon the 1935-36 Consumer Purchases Study by the Bureau of Labor Statistics.

4. $X_1 = 56.27\ (100 - X_2)^{-.3350}$ R: .906

where X_1 : percentage of female workers who are servants and

X_2 : percentage of female servants who are nonwhite.

The units of observation are 33 large cities, and the data are from the 1940 Population Census.

5. $X_1 = \underset{(.081)}{.307} + .367\ X_2 - \underset{(.00097)}{.00136}\ X_3$ R: .701

$X_1 = .349 - .293\ X_2$

where X_1 : ratio of servants to service workers' wages,

X_2 : ratio of the number of servants to the number of service workers, and

X_3 : percentage of nonwhite servants.

The units of observation are large non-Southern cities and the data are from the 1940 Population Census.

6. United States (48)

$X_1 = 30.34 - \underset{(.074)}{.278}\ X_2 + \underset{(.015)}{.046}\ X_3$ R: .510

Southern States (14)

$X_1 = 81.25 - \underset{(.156)}{.365}\ X_2 + \underset{(.023)}{.055}\ X_3$ R: .589

Other states (34)

$X_1 = 12.72 - \underset{(.051)}{.096}\ X_2 + \underset{(.011)}{.028}\ X_3$ R: .507

where X_1 : servants per 1,000 families,

X_2 : mean annual wage, and

X_3 : income per family.

One of the important observations made by Stigler in connection with "the servant problem" is that "if there is a servant problem it is primarily the problem of offering enough to draw persons into domestic service."[1]

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[1] Ibid., p. 36.

Previous studies had centered on the low social status of domestics as a cause of the "shortage" of servants. It is, of course, probably true as Stigler indicates that a rise in the servant wage rate would do much to eliminate the so-called shortage.

There are several other published works on domestic service. Most of these are listed in one or another of the bibliographies published by the Women's Bureau. Nothing would be gained by examining these items here since interest centers primarily on the character of the industry and that seems to have been fairly well established from the sources cited above. It does seem worthwhile, however, to mention some bits and pieces of studies done in another connection that have a bearing on the central subject of this section. The first of these is the chapter on routine personal services in Stigler's Trends in Employment in the Service Industries, mentioned previously. The bulk of the material in Trends' section on domestic service is based on Stigler's previous monograph on Domestic Servants. One important addition is his regression analysis which includes a measure of income inequality.

$$X_1 = 5.82 - \underset{(.0032)}{0.109}\, X_2 - \underset{(.00059)}{.00024}\, X_3 + \underset{(.096)}{0.511}\, X_4 \qquad R{:}.94$$

where X_1 : servants per 100 families in 1940

X_2 : average annual wage of a servant in 1939,

X_3 : income payments per family in 1940, and

X_4 : percentage of income received by upper one per cent of income recipients in 1940.

A comparison of this equation with the 48 states' equation reproduced above (Stigler, item 6) reveals that family income becomes insignificant in the regression when a measure of income distribution is introduced. This substantiates Stigler's previous argument that income distribution rather than level determines the relative magnitude of household employment.

The Laundry, Laundry Service, and Cleaning and Dyeing Industry

An early study of the power laundry industry indicated that much of the work itself in a power laundry was unpleasant, requiring constant standing and for some occupations, considerable muscular strain. These work patterns, along with a high level of noise, meant that these workers generally suffered from fatigue by the end of the workday. The study also pointed out that many of the plants in this industry had a warm humid atmosphere.[1] There was apparently also a serious deficiency of many of the amenities found in other industries, things like adequate and clean washroom and toilet facilities, cool drinking water, and lunch or rest rooms. All in all, the report of the Women's Bureau suggests that operatives in power laundries suffered from loathsome working conditions.

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[1]Ethel L. Best and Ethel Erickson, A Survey of Laundries and Their Women Workers in 23 Cities, Women's Bureau Bulletin No. 78 (Washington, D. C.: Government Printing Office, 1930), pp. 17-22.

The length of the workweek in power laundries varied according to the section of the country.

The most characteristic week, by section, was as follows:

		Per Cent of the Women
Western	48 hours and under	97.2
Eastern	do	80.2
Middle Western	50 and under 54 hours	51.7
Southern	54 hours and over	48.4[1]

Out of 19,180 women in the survey, 5,076 were Negroes.[2] Data on wages are also given in this study, but there is no comparison with the wage rate in other industries. Within the power laundry industry itself there was a rather wide dispersion in wages depending on the particular job or occupation within the industry. Nonwhites earned substantially less than white women irrespective of occupation.

A recent survey of problems and prospects in the laundry and dry cleaning industry reveals something about the nature of employment in this industry today.

> The operations of launderers and cleaners call for several kinds of labor. The biggest group, and the most costly in the aggregate, is in production. These are largely unskilled workers who receive training sufficient to perform tasks in the marking,

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[1] Ibid., p. 43.

[2] Ibid., p. 61.

> sorting, washing, finishing, and assembly operations. Finishing requires the greatest number of workers, as hand labor is in some way involved with every item processed. Men are generally employed for the washing, extraction, and drying operations; women predominate in finishing and other production jobs, except in drycleaning plants.
>
> Other important job classifications include office workers, salesmen, and delivery, or route salesmen. Office skills are, of course, required of the first of these groups. Route salesmen should be able to handle relationships with customers or potential customers.
>
> Management has a serious problem in hiring and training workers whose productivity can be maintained or improved. Most owners are convinced that the cost of labor limits them to the unskilled labor market. Those recruited must be willing to work for low wages and be adaptable to the training necessary to perform at an acceptable level. A high rate of absenteeism is likely to be a serious problem with such employees.[1]

It is also observed that power laundries must compete with laundromats, and wash and wear fabrics. Dry cleaners also have been affected by competition to some extent, but this segment of the industry has continued to register growth.

> Drycleaners have not been influenced by the external competition as have launderers. And rising productivity enables cleaners to resist the upward pressure on prices better than laundries. The cleaner is still in the enviable position of offering services for which many consumers feel he is their only choice.[2]

Barber and Beauty Shops

Stigler examined some statistics for barber and beauty shops and noted that

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[1]Business and Defense Services Administration, The Laundry and Drycleaning Industry, A Study of Problems and Prospects (Washington, D. C.: Government Printing Office, 1965), p. 48.

[2]Ibid., p. 2.

> the number of barbers has not grown as rapidly as the male population, while the number of workers in beauty parlors has increased many fold more than the female population.[1]

He cites the safety and electric razors along with the rising popularity of being closely shaven as causes of the relative decline in barbering. Women's fashions and the invention of the permanent waving process are given as reasons why the beauty shop industry has expanded relatively. He notes that "both the barber and beauty parlor industries are organized in small shops, operated chiefly by single proprietors."[2] Stigler also notes that state licensing requirements pose something of a barrier to entry into the barbering occupation, but the effect of these barriers on average wages for the industry is difficult to measure.[3]

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[1]Stigler, Trends in Employment in the Service Industries, p. 101.

[2]Ibid., p. 103.

[3]Ibid., p. 105.

CHAPTER III

GENERAL THEORETICAL CONSIDERATIONS

In setting up the necessary hypotheses to be tested empirically, it is necessary to make a theoretical investigation as a means of uncovering the general principles that may be expected to govern employment in these occupations. This chapter delves into such matters as the manner in which people make decisions about their labor force participation and the resultant implications for routine personal services, factors influencing occupational choice and the implications for routine personal services, and the effects of unemployment on routine personal service employment.

Labor Force Participation and Routine Personal Services

That the household or family is the relevant decision making unit for studying consumption behavior has been recognized. In 1962, Jacob Mincer wrote:

> The analysis of market labor supply in terms of consumption theory carries a strong connotation about the appropriate decision-making unit. We take it as self-evident that in studying consumption behavior the family is the unit of analysis. Income is assumed to be pooled, and total family consumption among family members depends on tastes. It is equally important to recognize that the decisions about the production of goods and

> services at home and about leisure are largely family decisions. The relevant income variable in the demand for home services and for leisure of any family member is total family income. A change in income of some family member will, in general, result in a changed consumption of leisure for the family as a whole. An increase in one individual's income may not result in a decrease in his hours of work, but in those of other family members. The total amount of work performed at home is, even more clearly, an outcome of family demand for home goods and for leisure, given the production function at home. However, unlike the general consumption case, the distribution of leisure, market work, and home work for each family member as well as among family members is determined not only by tastes and by biological or cultural specialization of functions, but by relative prices which are specific to individual members of the family. This is so, because earning powers in the market and marginal productivities in alternative pursuits differ among individual family members. Other things equal (including family income), an increase in the market wage rate for some family member makes both the consumption of leisure and the production of home services by that individual more costly to the family, and will as a matter of rational family decision encourage greater market labor input by him (her).[1]

We may envisage human preferences as governing decisions to sell labor in the market place in the following manner. Each decision unit, be it family or single individual, must make purchasing, investment, and labor market participation decisions as a supplying unit. These two sets of decisions are inter-related and depend upon preferences and the inventory or resources and abilities within the unit, and market or other constraints without. One of

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[1]Jacob Mincer, "Labor Force Participation of Married Women," in Aspects of Labor Economics (Special Conference Series No. 14) (New York: National Bureau of Economic Research, 1963), pp. 65-66.

the alternatives that is relevant to the present discussion is between labor and nonlabor. Whether or not the unit must indulge in labor depends upon its ability to supply its needs with recourse to labor: viz, its inventory of resources, both financial and nonfinancial. The greater this inventory, and the return that may be earned from it, the smaller is the need for the unit to indulge in labor activity. Another alternative is between market and nonmarket labor. Given that the unit chooses to utilize some of its labor resource, it must decide whether to engage in home production, participate in the labor market, or employ some combination of the two. The prospects of obtaining a satisfactory return in the market place may be so minimal that the unit will utilize all of its labor for home production, engaging in, say, subsistance agriculture. Or one member of the family may go into the market with his labor in exchange for wages with which to purchase goods and services in the market place for the satisfaction of the family. The other members might provide the remainder of the family's wants through the use of their nonmarket labor. This is the typical arrangement in many homes with the husband selling his labor in the market place while the housewife provides nonmarket labor for the accomplishment of the household chores. And there may be various combinations in between these extremes and beyond them. The head may work full time and the wife part time. The family may be part

time subsistence farmers and part time laborers. Both might work full time, hiring a domestic to do the household labor.

In one sense, labor market participation for the family or single individual is a continuum or scale running from zero to a maximum of 100 per cent. At the zero point on this continuum, the unit will either not engage in labor activity at all, because of a large bank account or other means which allow it to consume without currently producing, or it will engage in home production. There may be another kind of continuum here inasmuch as the unit may combine some production with a drawing down of an inventory of resources or utilizing the return from them to finance current consumption if it has such an inventory. It may, moreover, engage in home production and exchange some of its fruits for other items in the market place. At the other extreme, the unit engages in no home production and has no inventory, but exchanges all of its labor in the market place for money or income in kind with which to purchase other goods and services.

Where will the unit locate on this continuum? Assuming that it will endeavor to maximize its satisfaction, and given its inventory, it will examine the situation in the market place and make comparisons of the labor requirements for supplying the needs of the unit. A unit with extremely high earning capacity in the market would probably sell all

of its labor in the market place and with the wherewithal purchase all of its consumption items in the market place. It might have a housekeeper and a chauffeur and hire people to do some of the more specialized tasks around the home such as repairs and maintenance and occasional interior redecorating. The unit may be looked upon as a producer which purchases inputs such as maid and home repair service and produces output, the product of its labor in the market place. The inputs supply the foregone home-production that it may maximize its satisfaction by its greater earnings in the market place. Looked at in a slightly different way, the market value of the labor of this unit exceeds its value in home production. The decision to engage in remunerative work makes the unit at the same time a supplier of labor in the market place and a demander of goods and services to replace home-production. This aspect of labor force participation is probably best thought of as the opportunity cost aspect. For example, in considering the demand for domestics, Mincer noted that "The wage rate of the domestic servant must be viewed in relation to the price of employing the wife at home, which is the opportunity cost of foregone earnings in the market."[1]

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[1]Jacob Mincer, "Market Prices, Opportunity Costs, and Income Effects," in Measurement in Economics, Studies in Mathematical Economics and Econometrics in Memory of Yehuda Grunfeld (Stanford, California: Stanford University Press, 1963), p. 74.

Another consideration that needs to be touched upon here is one relating to the value of time used in consumption. Becker has noted that

> For example, the cost of a service like the theatre or a good like meat is generally simply said to equal their market prices, yet everyone would agree that the theatre and even dining take time, just as schooling does, time that often could have been used productively. If so, the full costs of these activities would equal the sum of the market prices and the foregone value of the time used up. In other words, indirect costs should be treated on the same footing when discussing all non-work uses of time, as they are now in discussions of schooling.[1]

In other words, "Behind the division into direct and indirect costs is the allocation of time and goods between work-oriented and consumption-oriented activities."[2]

Therefore, the structure of the economy will be determined to some extent by this allocation of time between work-oriented and consumption-oriented activities. It seems worth mentioning that the division between work-oriented and consumption-oriented activities is not without some ambiguity. In order to bring out the difficulty of this division of concepts it is useful to introduce the idea of consumption involving either the active or passive participation of the person or persons engaging in the consumption activity. This ambiguity may also have a slightly different manifestation in that remunerative

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[1]Gary S. Becker, "A Theory of the Allocation of Time," The Economic Journal, September, 1965, p. 494.

[2]Ibid., p. 499.

labor may have some consumption orientation, to the extent that it is enjoyable. With respect to the question of why women work, it has been noted that

> Financial remuneration is, however, not the sole reason that so many women are in the labor force. It is significant that the more education a woman acquires, the more likely she is to seek paid employment, irrespective of her financial status. The educated woman desires to contribute her skills and talents to the economy not only for the financial rewards, but even more to reap the psychic rewards that come from achievement and recognition and service to society.[1]

Active participation in consumption activities may be thought of as those consumption-oriented activities that involve the creation of something. Most hobbies, for example, result in the creation of some end product, say, a rose garden. On the other hand, passive participation in a consumption activity may be defined as that which causes no product to be forthcoming like, say, watching a play or a movie, or simply daydreaming. Viewed in this manner, the division between work-oriented and consumption-oriented activities is somewhat arbitrary. Work, either in the market place or in the home, may be enjoyable and have some consumption aspects. Leisure activity which involves the creation of something either tangible or intangible, has some of the aspects of production or work. The amount of home production of the unit is partly a

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[1] 1965 Handbook on Women Workers, Women's Bureau Bulletin No. 290 (Washington, D. C.: Government Printing Office, 1965), p. 5.

matter of taste. One may or may not wish to have a rose garden.

It seems appropriate at this juncture to examine in some detail the factors that may be weighted in the consumer unit's decision to purchase those services which have been defined as close substitutes for home production. Let us consider first those routine personal services which involve the release of time of one or several family members. These are ones which involve the performance of some of the household chores such as cooking meals, cleaning, clothing and shoe care, caring for younger members of the family, and shopping for the day-to-day household needs.

The alternative ways in which the family meals may be prepared include having a mamber of the family cook meals, hiring a domestic to cook or to cook and do other household chores, or eating out. If a family member or domestic prepares the food in the household, then there is a variety of methods of accomplishing that task. The latest equipment and prepared foods may be used in order to economize on time spent on food preparation or more basic methods may be employed. In addition, some combination of home and outside the home food preparation and consumption may be used as in the case of catering where the food is prepared away from home but consumed in the home.

Another release-time case worth considering is the doing of the family washing. Laundering may be accomplished

by the housewife using primitive or modern home laundry equipment, by a domestic using primitive or modern home laundry equipment, or by someone outside of the home, a washerwoman or commercial laundry, which specializes in laundering. It should also be noted parenthetically here that it may be done by a family member or domestic in a laundromat, but that for a family member to do it requires a time input on the part of the family member. An additional consideration is the use of fabrics which minimize the effort required to produce a neat appearing garment, such as drip dry shirts.

Some clothing care, such as dry cleaning, is not really too amenable to home production or accomplishment by a domestic. Often special techniques or chemicals are required which makes it rather unlikely that the chore will be performed in the average household. But then too, spot remover and an iron are satisfactory substitutes for dry cleaning in many households.

Shoe upkeep is much like dry cleaning in that it is really not too amenable to home production or accomplishment by a domestic. Commercial shoe repair probably should not be considered as a very close substitute for home production. It should also be noted that there is an alternative to shoe repair, and this alternative is the purchase of new shoes when the old ones become sufficiently worn as to warrant either repair or replacement.

General cleaning and upkeep of the household must perforce be done on the premises. Accordingly, substitutes for home production of the house cleaning are pretty much confined to hiring a domestic. Here too, however, it should be noted that there are devices such as vacuum cleaners that may be used to diminish the burden of the chore or to shorten the length of time required for its performance.

Babysitting may be done either on the premises or in the home of another. Nurseries compete with babysitters in the private household.

It may be noted that one or many persons can be hired to perform these chores. A single domestic may be required to babysit, clean and cook, or a domestic may be hired to assist the housewife in the domestic chores.

Other routine personal services require participation of the consumer of the service. The occupation companion is one of these. Indeed a companion is hired for the express purpose of accompanying the employer. For the most part, the routine personal services associated with cosmetology also require the presence of the consumer of the service, as being barbered or manicured or having one's hair shampooed and set.

In a sense, the purchase of those routine personal services having the characteristic that they release some family member for other prusuits may be thought of as a

purchase of time. The time may be utilized either for consumption or production. A babysitter may be employed in order to free the housewife for remunerative or non-remunerative employment outside of the home. Or the housewife may simply idle away the released time. True some domestics may be hired primarily as a means of conspicuous consumption a la Veblen. But this situation too probably has the outward manifestation of time release since the domestic so hired, classified as babysitter, maid, or whatever, does at least bear the title of one who performs release time activities.

Routine personal services having to do with the appearance of a member of the unit may also be production or consumption motivated. To the extent that appearance is important to the occupations of the persons in the consuming unit, barbers, beauticians, shoe repair and clothing care services become production inputs since they are important to the appearance of the individual. On the other hand, they are also partly consumption oriented to the extent that they are desired in themselves for the feeling of well being they give to the user.

The purchase of routine personal services, then, may be motivated in part by a motivation to get release of time for engaging in some other form of production, as an input for production, or by a motivation to consume either the service itself, or time freeing for other consumption.

One additional consideration of the motivation for this consumption is that inasmuch as work may itself produce some satisfaction on the part of the worker, the apparent production motivation for consuming routine personal services may contain an admixture of consumption motivation, if the consumer employs routine personal services so as to be able to engage in remunerative or non-remunerative work that he enjoys.

It may be worth noting here also that there are other services as well as goods whose consumption is multifaceted in the above manner. Automobile tune-up is an example of a service that frees the automobile owner from home production for a work-oriented or a consumption-oriented activity. These other substitutes for home production are not the object of this study, however, and there seems little to be gained by dwelling on this matter of the motivation behind their consumption at this juncture. They may, it should be noted, however, be competitive with some routine personal services. T.V. dinners, for example, compete with the services of a domestic cook.

Routine personal services consumption, then, can require the consumption of time, or it can effect the freeing of time of a family member. Whether it is time freeing or time consuming service, on the part of family members, it may be consumption or production motivated, or some combination of both. Relevant considerations besides income and price are opportunity cost and the value of time.

Occupational Choice

Up to now the discussion has proceeded on the basis of consideration of the decision unit, be it a single individual or family. For a single individual, one person both makes and implements the decision; but although a family unit may make the decision by some process, it is individuals within the unit which carry out the decision. Each member, discrete within the unit, either participates in the labor force or does not. Each member possesses desires and abilities that are unique. Given a family process of balancing preferences, the participation of each member will depend to some extent upon the contribution that he can make to the total family satisfaction in his various uses in home production or market production.

For some family members, the unit may decide upon investment in human capital as the optimum choice. Mores and social values may have a deciding influence on the decision of some units. It is still a value widely accepted that the proper role of the woman is the home.

There seems to be no really detailed theory of occupational choice which reveals why, for example, doctors in business today became doctors rather than, say, plumbers. Some very worthwhile research has been done in the area of occupational choice, however, and some of the general findings seem relevant here. Ginzberg, one of the pioneers in the area, from intensive interviewing of a sample of students

in various stages of the formal educational process, drew several general conclusions about occupational choice.

> The outstanding conclusion from our findings is that occupational choice is a developmental process: it is not a single decision, but a series of decisions made over a period of years. Each step in the process has a meaningful relation to those which precede and follow it.
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> From this primary finding, there follows a second important generalization: the process is largely irreversible. This is a result of the fact that each decision made during the process is dependent on the chronological age and development of the individual. Time cannot be relived; basic education and other exposures can only be experienced once. Of course, the individual can shift even after he has tentatively committed himself to a particular choice. But the entire process of decision-making cannot be repeated and later decisions are limited by previous decisions.
>
> The primary finding that occupational choice is a process leads to a further generalization: the process ends in a compromise. Throughout the years of his development the individual has been trying to learn enough about his interests, capacities, and values and about the opportunities and limitations in the real world, to make an occupational choice that will yield him maximum satisfaction. If he could base his choice on but one element, such as his interests or capacities, without regard for the job market, the income structure, and the social prestige which attaches to different kinds of work, his choice should be simple and direct. However, a series of factors, both internal and external, affect his decision. He must renounce to some degree the satisfactions which he might derive if he based his choice exclusively on a strong interest, a marked capacity, or a realistic opportunity. He must find a balance among the major elements. Hence, the compromise aspect of every occupational choice.[1]

Elsewhere it is noted that

> The differences in exposure and stimulation in the environments of the upper and lower income groups contributed to differences in decision-making, for

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[1]Eli Ginzberg et al., Occupational Choice, An Approach to a General Theory (New York: Columbia University Press, 1951), pp. 185-186.

> occupational choice is greatly influenced by family, community, and school.
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> . . . . . .
>
> These differences between the two groups indicate that the upper income group has a much wider range of choices and is in a much better position to obtain whatever preparation is required for the realization of their final choice. For instance, the high school senior in the upper income group who was looking forward to studying medicine not only had no anxiety about financing the long period of preparation, but he already knew that his parents would assist him financially if he should marry before he completed his studies. It is interesting to note that there was only one boy in the lower income group who, during his fantasy period, had looked forward to being a doctor; and quite early in puberty he realized that this choice "did not suit him." The presumption is that he had become aware of the realistic difficulties that faced him and he therefore put the idea aside.
>
> The case material suggests that one of the major limitations facing the lower income group is their modest level of expectation with respect to their occupational choice. Certainly they would encounter increasing obstacles in seeking to realize vocational goals which require a long period of preparation and economic investment. However, many of them might be able to overcome these obstacles if they were determined to do so; but frequently they do not even consider it.[1]

Another interesting observation is that

> It might appear that children from upper income families have almost complete freedom in making an occupational choice, while those from a lower income group are very restricted. However, society places a high evaluation on some occupations and a low evaluation on others, and these ratings exercise an important influence on the choices which individuals make. In this way, children from upper income families are actually limited. The son of a doctor will not maintain in late adolescence and young adulthood a desire to become a carpenter because of an early and strong interest in and a capacity for woodwork. He usually transforms this interest into a hobby while he seeks a career that promises greater income and prestige.[2]

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[1] Ibid., pp. 152-155.

[2] Ibid., pp. 134-135.

During the decision making process, occupational choice is to some extent dependent on the constraints of the market place. These constraints are more formidable for some than for others. Females and certain minority groups may find it exceedingly difficult to gain entry to certain occupations. The individual making the occupational choice then must weigh his own tastes, values, and abilities against these constraints, mapping a course toward that occupation which seems most promising or satisfying. One of the very important constraints, alluded to above, is the need for means to finance long periods of education and training for some professions. Many persons, otherwise perhaps qualified to become professional workers are constrained by the lack of the wherewithal from embarking upon such a career.

Doubtless the constraining influence of the market place grows in intensity with the passage of time. By the time a male is fifteen it is too late in life for him to make the initial beginning on a baseball or football career. At thirty he is too old to begin the initial training for a career as a surgeon. There is, on the one hand, the problem of age. The prime age of a baseball player is such that training must begin at an early age. For surgeons, it is difficult to gain entry to a training program after a certain age. On the other hand, for the surgeon, which requires a sizable investment in time and human

capital in the person undergoing the training, the expected return on the investment is greatly diminished with the passage of time because the productive time left after training is shorter than if the training had begun upon graduation from high school in the late teens.

Then there are occupations which have virtually no entry constraints and require very little time and human capital investment in training: gas station attendant, hospital orderly and the others which have been designated in previous chapters as disadvantaged occupations as well as some like manufacturing operatives in low wage, scab industries, like apparel and textile manufacturing in the South.

In summary, then, we have on the one hand the family unit making decisions about consumption of goods and services and the supply of market labor. On the other hand, talents and abilities of this unit pertain to individuals in the unit and not to the unit as an entity. Decisions may be made by the unit as a whole, but they are implemented by means of the acts of the individuals in the unit. Another element in the decision making of the unit takes account of the abilities and earning capacity of the individual members. Where the unit consists of the single individual, this dichotomy is unimportant. But in the case of the multiperson family, the skill mixture of the group does add this additional dimension.

The idea of an occupational hierarchy according to societal evaluation was mentioned above in the quote from Ginzberg. Most rankings of occupations according to their standing in this heirarchy would probably place professionals and managers near the top. White collar workers such as office supervisors might be placed somewhere near the middle of the hierarchy while many manufacturing operatives would be near the bottom. Also at or near the bottom would be most of the routine personal service occupations.[1]

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[1]A search of the literature on status and educational requirements for occupations has revealed that the occupations herein designated as routine personal services are generally believed to possess below average status. Two of the routine personal service occupation groups have been explicitly singled out by the Manpower Development and Training Administration as possessing low status.

> ". . . Workers are unwilling to enter or remain in jobs characterized by low wages, lack of occupational prestige, unpleasant working conditions, and limited opportunities for advancement. These factors have been chiefly responsible for the widespread shortages of such workers as hospital attendants, household employees, restaurant workers, and laundry workers." (Manpower Report of the President (Washington, D. C.: Government Printing Office, 1967), p. 150.)

For more complete information on occupational status see Duncan's ranking of all Census of Population occupational categories in Albert Reiss, Jr. and others, Occupations and Social Status (New York: The Free Press of Glencoe, Inc., 1961), pp. 263-275.

The training and educational requirements for most routine personal services are also below average. The major exception is for shoe repairmen where the training requirement is far above average, but the educational requirement is below average. Certain occupations within the broader groups, such as governess, may also have high educational or training requirements. These probably are of relatively minor importance in the occupational group

The expectation, then, is that the choicest occupations are staffed by persons with outstanding ability or from a high income group with the wherewithal to finance a long training period. At the bottom of the hierarchy are those unable or unwilling for one reason or another to compete for the better occupations. In other words, it is to be expected that disadvantaged persons are employed in those disadvantaged occupations known here as routine personal services. These are occupations where the barriers imposed by sex, age, color, appearance, personality, previous background and others of like kind are likely to be least imposing. These occupations may be thought of as the last resort for some persons, or as the only resort.

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in which they are categorized. Information on educational and training requirements for occupations is published in Manpower Administration, Selected Characteristics of Occupations (Physical Demands, Working Conditions, Training Time) 1966, A Supplement to Dictionary of Occupational Titles, 1965 (Washington, D. C.: Government Printing Office, 1966).

CHAPTER IV

PRACTICAL PROBLEMS IN MEASURING UNEMPLOYMENT

The general theoretical considerations given in the previous chapter are helpful for knowing what factors should be represented in a statistical model. But in the model utilized in the present case, the variables that have to be employed for representing unemployment are deficient in several respects. This chapter is a detailed examination of some of the more serious of these deficiencies.

Assume that the oval shaped diagram represents the total population. We may divide the population into these

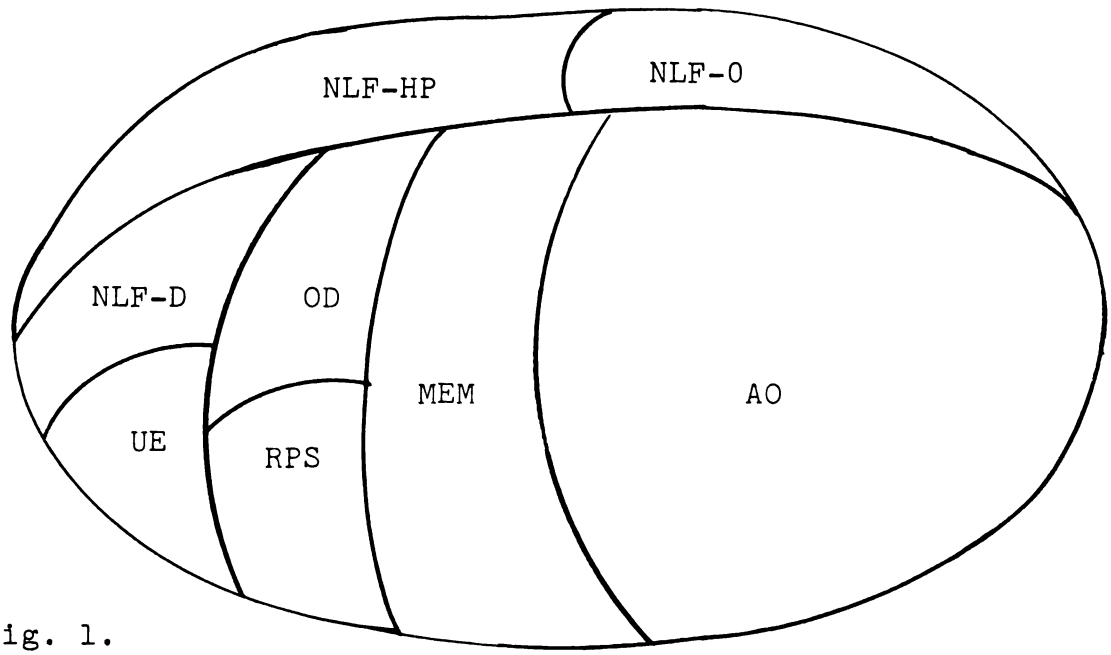

Fig. 1.

groups. Those persons who are in the labor market but unable to get a job, UE; those persons who have left the labor force out of discouragement at being able to find a job, NLF-D; those employed in routine personal service occupations, RPS; those employed in other disadvantaged occupations, OD; those employed as manufacturing operatives, MEM; all other employed, AO; those not in the labor market but engaged in home production, NLF-HP; and those neither in the labor market nor engaged in home production, NLF-O.

It is generally accepted that high unemployment indicates that relatively many of the labor force cannot, because of institutional rigidities that do not allow wage rates to fall to a level to absorb their services at the market wage rate, or else lack of marketable skills on the part of the unemployed, find jobs. In either case in a closed economy it is to be anticipated that there will exist a comparatively large pool of labor that has been thrust toward the least attractive jobs when the unemployment rate is high. If it is assumed that institutional factors are not so rigid as to preclude some functioning of the labor market mechanism, then normal economic forces should come into operation, manifesting themselves in relatively high employment in routine personal services when the unemployment rate is high. More specifically, a high unemployment rate should, other things being equal, swell the supply of available labor for routine personal

services. If there is general unemployment, the general wage rate should be low; if unemployment is confined to disadvantaged labor, then the wage rate for disadvantaged labor should be low. In the latter case, high unemployment should cause high routine personal service employment because of its effect on the supply of labor for routine personal services. But when a general unemployment situation exists, there is also a shortage of demand for routine personal services; general unemployment may affect the supply function for routine personal service employment, but it affects the demand function as well. Whether routine personal service employment increases or decreases depends upon the net effect of these shifts.

Figure 1 pertains to a closed economy at a moment in time. Over time, there will be changes in the system caused by changes in birth rates, demand shifts, and all of the other factors that give rise to economic change. If the system is an open one, and time is variable, and it should be borne in mind that this study is based upon analysis of 49 open economies in which there are no serious barriers to the transfer of resources and migration across state borders, high general unemployment seems likely to be accompanied by migration of those with marketable skills to economically more attractive areas. The unemployables will remain, exacerbating the generally poor labor market situation. For much the same reason that high unemployment is expected

to be accompanied by a high rate of employment in routine personal services, through its effect on supply, an increase in unemployment seems likely to be accompanied by an increase in the rate of employment in routine personal services.

A number of complications are encountered in interpreting the real condition that is indicated by any observed UE among the population. These may be subsumed into three categories of problems: the real meaning of labor force data on employment and unemployment, the problem of age, sex and race mix on any observed labor force participation or unemployment rate, and the problem of seasonality in the data.

One of the difficulties in the concept of unemployment is that it takes no account of those persons who have departed altogether from the labor force because they have given up hope of finding employment, those designated in Figure 1 as NLF-D. To the extent that these people exist the real condition that is supposed to be measured by an unemployment statistic alone is underestimated. These persons might be in the labor force even though unemployed, if they actually believed that there were any hope of obtaining gainful employment in the labor market. The debate about this measurement problem has been stated most succinctly by Kenneth Strand and Thomas Dernburg:

> there are three main hypotheses that have vied for attention. The "discouraged worker" hypothesis holds that when economic activity declines, workers become discouraged and leave the labor force. The "additional worker" hypothesis maintains that labor force participation increases at low levels of economic activity when "secondary" workers enter the labor force under the pressure loss of work by the "primary" worker. The "offset" hypothesis maintains that any inflow of additional workers is offset by an outflow of discouraged workers so that, on balance, the over-all participation rate remains virtually constant, or that at least there is no clearly discernible cyclical relationship.[1]

The problem here, of course, is doubt about the effect on labor force participation (LFP) of entry of secondary workers into the labor market, workers that otherwise would be in NLF. From the aggregate data, there is no way of distinguishing a person in NLF-HP or NLF-O from one in NLF-D. Both are outside of the labor force and that is all that is known about them. Their reason for being outside of the labor force, the fact which would make possible the necessary classification, is not known. Some method of inference must be employed to discover the meaning of an observed LFP. Strand and Dernburg, for example, using time series regressed the employment ratio (per cent of civilian non-institutional population that is employed) and the exhaustion ratio or unemployment compensation on the LFP ratio to validate both the discouraged worker and the additional worker hypothesis. They found that

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[1]Kenneth Strand and Thomas Dernburg, "Cyclical Variation in Civilian Labor Force Participation," The Review of Economics and Statistics, XLVI (November, 1964), 378.

> an initial decline in employment from a cyclical peak results in large-scale discouragement and withdrawal from the labor force. Subsequent declines in employment are met by a smaller decline in labor force participation. As the period of economic slack grows longer, pressure on additional workers to enter the labor force builds up and this tends partially to offset the discouragement effect.[1]

These introductory remarks by Strand and Dernburg serve also to bring out the second type of complication mentioned above: population composition. First it should be noted that the concept of LFP until March 1967, applied only to the 14 years old and over population. (The age limit is now 16.) In other words, persons under 14 were, by definition, neither employed nor unemployed. Accordingly, the LFP rate for the entire population is functionally related to its definition since it can vary solely on the basis of the number of persons under 14. This matter of definition poses no problem since the LFP and UE data published by the federal government are designed to pertain to the population 14 years old and over. The meaning of Figure 1 above is, accordingly, modified slightly and pertains only to the population in the age group 14 and over.

Eliminating this minor problem by definition may have solved one rather small problem of concept, but there remains a host of other complicating factors that stem from population composition. The sex and age make-up of the population may have an important bearing on the overall LFP

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[1] Ibid.

rate. Strand and Dernburg, for example, based upon some preliminary research results, found that,

> when the data are classified by age and sex we find, as expected, that the discouragement and additional worker effects are strongest among the female population and the very young and very old males. The older population is distinguished from the younger population in that while the discouragement effect is equally strong, the additional worker effect, as measured by the exhaustions ratio, is not. As anticipated, we find that labor force participation among males between the ages of 25 and 54 is less elastic with respect to changes in aggregate employment than is participation in the other groups. It is not, however, true that labor force participation among these adult males is autonomous. All groups of all ages and of both sexes succumb to both the discouragement and additional worker effects.[1]

Besides this divergence of functional relationships between different groups of the population, there is a matter of characteristic differences for LFP and UE rates between different population groups. The numbers in Table 1 reveal substantial variation in both LFP and UE rates among the age groups, sexes, and color groups of the population. There is clear evidence that the female nonwhite LFP rate is above the female white LFP rate, while for males the white LFP rate is above the nonwhite LFP rate. It will be seen also that teenagers have relatively low LFP rates and high UE rates. The point here is that population composition can have considerable bearing on the overall labor force status

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[1]Strand and Dernburg, p. 391; but see Jacob Mincer, "Labor-Force Participation and Unemployment, A Review of Recent Evidence," in Robert Aaron Gordon and Margaret S. Gordon, eds. Prosperity and Unemployment (New York: John Wiley and Sons, Inc., 1966), p. 81 for a critique of their methodology.

TABLE 1.--Employment status by age, color and sex for the United States: April 1960.

	Total	14-17 years	18-24 years	25-34 years	35-44 years	45-64 years	65 and over
				Labor Force Participation			
Male White							
Total Population							
14 years and over	55,036,172	5,045,[illegible]	6,731,765	9,941,904	10,556,349	16,040,125	6,720,422
Total Labor Force	42,[illegible],557	1,381,[illegible]	5,435,872	9,514,[illegible]	10,162,541	14,384,[illegible]	2,057,916
LFP Rate	78.02	27.[illegible]	80.7[illegible]	95.7[illegible]	96.27	89.68	30.62
Male Nonwhite							
Total Population							
14 years and over	6,279,181	[illegible]	[illegible],665	1,231,666	1,182,942	1,668,694	588,563
Total Labor Force	4,527,833	[illegible]	[illegible],513	1,[illegible]	1,061,494	1,380,400	172,818
LFP Rate	72.11	[illegible]	74.77	88.50	89.78	82.72	29.36
Female White							
Total Population							
14 years and over	5[illegible],[illegible]6,699	4,[illegible]	6,934,422	11,219,600	11,007,175	16,857,055	8,238,545
Total Labor Force	17,53[illegible],250	[illegible]	3,171,525	3,421,7[illegible]5	4,523,533	6,851,069	833,610
LFP Rate	33.64	14.[illegible]	45.71	33.49	41.10	40.62	10.12
Female Nonwhite							
Total Population							
14 years and over	6,374,464	[illegible]	[illegible],424	1,426,904	1,3[illegible]4,166	1,767,345	659,727
Total Labor Force	2,671,505	[illegible]	[illegible],576	[illegible]	741,953	861,143	8[illegible],208
LFP Rate	41.77	[illegible]	47.31	45.58	55.52	48.73	12.92
				Unemployment			
Male White							
Civilian Labor Force	41,572,71[illegible]	[illegible],337,[illegible]	[illegible],216	9,204,891	9,90[illegible],[illegible]	14,326,870	2,05[illegible],8[illegible]8
Unemployed	1,911,03[illegible]	133,[illegible]	[illegible],474	349,362	335,470	600,513	10[illegible],605
UE Rate	4.[illegible]	[illegible]	7.30	3.54	3.37	4.19	5.2[illegible]
Male Nonwhite							
Civilian Labor Force	4,[illegible],949	14[illegible]	614,483	1,[illegible],539	1,044,551	1,37[illegible],194	172,719
Unemployed	354,[illegible]	[illegible]	[illegible],576	87,577	7[illegible],[illegible]	10[illegible],572	[illegible]
UE Rate	5.76	14.[illegible]	13.[illegible]	[illegible].41	7.34	7.45	7.83
Female White							
Civilian Labor Force	19,412,727	735,[illegible]	3,15[illegible],132	3,417,[illegible]	4,51[illegible],064	6,877,947	833,328
Unemployed	9[illegible]4,130	[illegible]	[illegible],719	177,[illegible]	204,[illegible]	272,[illegible]	3[illegible],161
UE Rate	4.[illegible]	[illegible]	6.45	5.20	4.53	3.95	4.22
Female Nonwhite							
Civilian Labor Force	2,[illegible]	[illegible]	[illegible],049	[illegible],325	741,719	861,032	85,181
Unemployed	244,975	13,5[illegible]	60,935	52,663	52,573	50,418	4,507
UE Rate	8.54	[illegible]	14.45	9.04	7.09	5.86	5.64

Source: U. S. Bureau of the Census, [illegible] 1960.

of the population. A population with unusually many adult males will have, other things equal, a higher LFP than one with unusually many teenage females.

Another serious defect in the unemployment statistics used in this study stems from the fact that the rate of unemployment in many states may be subject to seasonal variation. The data on employment and unemployment published in the Population Census pertain to April 1950 or April 1960. Consequently the rates for some states may be unrepresentative of the underlying unemployment situation. It seems reasonable to expect that the employment status of people and consequently the industrial unemployment rate of a state would be much more transitory than a state's industrial structure or the share employed in a particular set of industries or occupations such as routine personal services. Therefore while there are grounds for being reasonably confident that Census of Population employment rates in various occupations or industries are fairly accurate for depicting basic structural differences existing during the 1950's and again during the early 1960's, one is hesitant about placing the same degree of confidence in the unemployment rates as indicators of corresponding unemployment conditions.

Inasmuch as unemployment data are compiled by state agencies in connection with their Bureau of Employment Security activities, it might be thought that their data, rather than the Census data should be used here. While it

is true that using annual averages published for states by these state agencies would ameliorate the seasonal problem, there are a number of reasons for avoiding these data.

1. They are not available for 1950 for most states and for a few states in 1960.
2. Their reliability in 1960 is questionable.[1]
3. The state averages are for total employment only; there are no disaggregations.
4. Corresponding labor force participation data are not compiled by state agencies.
5. They are inconsistent with corresponding employment data or employment data from other sources in that they are concocted.[2]

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[1]See, for example, Joseph C. Ullman, "How Accurate are Estimates of State and Local Unemployment?" Industrial and Labor Relations Review, XVI (April, 1963), pp. 434-452; and John H. Lindauer, "The Accuracy of Area Unemployment Estimates Used to Identify Depressed Areas," Industrial and Labor Relations Review, XIX (April, 1966), pp. 377-389.

[2]For the concoction formulae see Bureau of Employment Security, Estimating Unemployment (Washington, D. C.: Bureau of Employment Security, March, 1960, reprinted April, 1961).

CHAPTER V

FORMULATION OF THE STATISTICAL MODEL

It was observed in Chapter I that one of the attractions for utilizing areal cross section data for testing the theory is that these services are likely to be consumed by the residents of states wherein they are produced. But this element is also a disadvantage in the statistical model in that many of the data utilized pertain to both consumers and suppliers of routine personal services. The median income figure for a state, for example, is based upon a distribution of persons or families which includes these suppliers as well as demanders and there is no method for unentangling the median income statistic for one group from that for the other. Another disadvantage of the state by state data is multicollinearity among some of the variables which the economic theory indicates should appear in the independent set of equations. Several earlier attempts to test the statistical models revealed, for example, that wage rates for different industries are highly correlated among states. The wage rate for females in domestic service is highly correlated with the wage rate for females outside of domestic service, and both of these wage rates are highly correlated with the other wage rates in routine personal

services. Thus, although economic theory would indicate that the wage rate for the particular routine personal service occupation being analyzed should appear in the demand relationship along with the general wage rate and other relevant variables, as a practical statistical matter this cannot be done using the data employed here because of the high correlation between these two variables.

Notwithstanding that these problems preclude specification of an all encompassing statistical model for testing the theory, it seems worthwhile to set forth a theoretical model drawing on the ideas presented in previous chapters, and then to modify that model so as to make it adaptable for statistical testing.

Supply

Given that the routine personal service occupations are among those which are ranked low in the occupational hierarchy in terms of status and pecuniary reward, it seems rather obvious that as a general rule the supply of persons for employment in these disadvantaged occupations will depend upon the size of the labor pool which is disadvantaged in some sense and cannot compete for the better employment opportunities.[1] Who are these disadvantaged? First off there are those who are disadvantaged by virtue of their

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[1]"Disadvantaged occupation" is not a new term; in its Handbook for Leaders, the National Committee on Household Employment refers to the private household occupation as a disadvantaged occupation, p. 31.

ancestory, namely nonwhites and foreigners. Second there are those who are disadvantaged by virtue of their unemployability for other reasons such as lack of a marketable skill. Third there are those who are forced into the labor market because the primary breadwinner is unemployed; those are among the so-called secondary work force. These groups may be thought of as constituting the supply of disadvantaged labor for all disadvantaged occupations, those in routine personal services as well as those outside of them.

It may be expected that the availability of suitable alternative employment opportunities will diminish the supply of disadvantaged labor for routine personal service occupations. Other possible considerations in a generalized supply function are the level of affluence of these disadvantaged persons and the prospective wage rate in routine personal service occupations.

A very general supply function which embraces these factors is:

$$S_{rps} = a_1 + a_2\ NON + a_3\ FBW + a_4\ UE + a_5\ SEC + a_6\ ALT + a_7\ S\text{-}AFFL + a_8\ W_{rps} \qquad (1)$$

where S_{rps} indicates that this is a supply function of labor for routine personal service occupations

NON indicates the attribute nonwhite

FBW indicates the attribute foreign born white

UE indicates the level of unemployment

SEC indicates the attribute secondary worker

ALT indicates alternative employment opportunity for disadvantaged labor

S-AFFL indicates the level of affluence of the disadvantaged or potential suppliers of routine personal service labor

W_{rps} indicates the wage rate in routine personal service occupations.

Inasmuch as the analysis in the next chapter utilized percentages or rates for many of the variables, equation (1) should be interpreted similarly. Thus NON pertains to the percentage of the population that is characterized as non-white. FBW refers to the percentage of the population that is foreign born white. UE indicates the unemployment rate. ALT indicates the percentage of employed persons that are employed in suitable alternatives. In S-AFFL and W_{rps} may be taken at this juncture as dollar variables rather than rates. S-AFFL might be interpreted as median income of the disadvantaged while W_{rps} is the market wage rate for routine personal service occupations.

SEC acquires operational significance through further specification of the model which involves disaggregation of the supply function into its male and female components. Hence

$$F\text{-}S_{rps} = b_1 + b_2\ NON + b_3\ FBW + b_4\ F\text{-}UE + b_5\ M\text{-}UE + b_6\ ALT + b_7\ S\text{-}AFFL + b_8\ W_{rps}, \qquad (2)$$

where "F-" or "M-" indicates female or male as the case may be, is a generalized supply function for females for routine personal service occupations. The vague SEC variable of equation (1) is replaced by the variable M-UE in equation (2). The idea is that a high male unemployment rate forces females into the labor market as secondary workers or breadwinners, contributing to the supply of female disadvantaged labor. The variable F-UE indicates the condition of the female labor market itself.

As was observed in the preceding chapter, some unemployment may fail to get reported as such in the unemployment statistics. People may simply drop out of the labor force altogether after prolonged unemployment. Consequently some unemployment may be hidden in a low labor force participation rate, producing

$$F\text{-}S_{rps} = c_1 + c_2\ NON + c_3\ FBW + c_4\ F\text{-}UE + c_5\ F\text{-}LFP + c_6\ M\text{-}UE + c_7\ M\text{-}LFP + c_8\ ALT + c_9\ S\text{-}AFFL + c_{10}\ W_{rps}. \qquad (3)$$

The expected signs of the coefficients are:

c_2, c_3, c_4, c_6, c_{10} greater than 0,

c_5, c_7, c_8, c_9 less than 0-

An additional reason, apart from the one just given, for having M-LFP in the expression is that a low male labor force participation rate, whether it represents male unemployment or some other cause, would, other things equal, make it more necessary for women to enter the labor market.

For males, the supply function is simply:

$$M\text{-}S_{rps} = d_1 + d_2\ NON + d_3\ FBW + d_4\ M\text{-}UE + d_5\ M\text{-}LFP + d_6\ ALT + d_7\ S\text{-}AFFL + d_8\ W_{rps} \quad (4)$$

It is not appropriate to consider the condition of the female labor market as a factor in the supply of males for routine personal services inasmuch as males are the primary breadwinners. This is not to say that the same factors that relate to the condition of the male labor market are irrelevant to the condition of the female labor market. It is to say simply that the situation in the female labor market is not a determining factor on the male labor market condition in the same manner as the situation in the male labor market influences the female labor market.

Demand

Unlike the supply for labor for routine personal service occupations, which can be considered as two separate functions, one for males and the other for females, demand functions for routine personal services can be expected to

vary with the nature of the service. There is, first off, the consideration that outside of the private households industry, where the consumer of the service is also the employer of the labor, demand for routine personal service labor is derived. In barber shops; beauty shops; shoe repair shops; and laundering, pressing, cleaning, dyeing, and garment repair establishments, labor is combined with capital and other inputs to produce a service. Consequently, the value of the marginal product (VMP) schedule for the industry is the true demand function for routine personal service labor for these industries, where the firm or establishment may be thought of as an intermediary between the raw labor input and the final consumer. The data utilized in this study preclude estimation of the VMP schedule for these routine personal service industries, hence it is simply assumed that the demand for labor for routine personal service occupations is a direct function of the demand for the routine personal services themselves. Abstracting from the firm as intermediary, the following generalized demand function for routine personal service labor may be anticipated:

$$D_{rps} = e_1 + e_2\ \text{D-AFFL} + e_3\ P_{rps} + e_4\ \text{PRICES} + e_5\ \text{OC} + e_6\ \text{CHAR} \qquad (5)$$

where

D-AFFL indicates the level of affluence of the potential purchasers of routine personal services

P_{rps} indicates the price of routine personal services

PRICES indicates the prices of other goods and services

OC indicates the opportunity cost of employing a family member to do the housework that could alternatively be accomplished by means of purchasing routine personal services

CHAR indicates special characteristics pertaining to particular routine personal services, to be explained shortly.

Inasmuch as the firm is assumed away in the model, P_{rps} may be considered as being identical with the corresponding W_{rps} which appears in the supply function, equation 3 or 4.

The theory underlying the introduction of the variable OC, it may be recalled from Chapter III, was elucidated by Mincer. He defined the market wage rate that the housewife might earn as the opportunity cost of employing her in the home. Along with this wage rate, he had in his demand function for domestics the wage rate for domestics.

Subsumed under the catchall CHAR is a variety of factors, none of them relevant for all of the routine

personal service occupations. Let us consider first the demand for females in households occupations. There are, in reality, two components to the occupation group, females in private households occupations. They are divided according to whether they are live-in domestics or live-out domestics. The numbers in Table 2 reveal the order of magnitude of the respective rates of live-in domestics (F-HHOin) and live-out domestics (F-HHOout). There it will be seen that in most states, F-HHOin is very small as compared with F-HHOout. Moreover, as a matter of fact, there is a high negative correlation between F-HHOin and F-HHOout in the data for both 1950 and 1960. In the particular demand function for F-HHOin it is necessary to allow for this substitutability for domestics living-out, consequently allowance must be made in the model for F-HHOin for the wage rate for live-out domestics as well as that for live-in domestics; and similarly for the model for F-HHO out allowance must be made for the wage rate for domestics, living-in as well as for domestics, living-out.

Another consideration that would seem to be particularly relevant to demand for all private households labor is the labor force participation of females. Female labor force participation in and of itself is a source of potential demand for both male and female domestic labor to replace the foregone home production of the employed female. Now it may be recalled from equation (3) that

TABLE 2.--Female rate of employment in private households occupations, living-in, and private households occupations, living-out, by state for the conterminous United States and the District of Columbia April 1: 1950, 1960 and 1960 as a per cent of 1950.

State	F-HHOin			F-HHOout		
	1950	1960	1960 as per cent of 1950	1950	1960	1960 as per cent of 1950
Mississippi	.23	.18	77	17.59	20.31	116
Alabama	.48	.30	62	15.69	15.56	99
Georgia	.43	.32	76	18.61	16.91	91
Louisiana	.48	.31	65	[illegible]	18.71	104
South Carolina	.42	.30	71	[illegible]	16.34	102
District of Columbia	1.34	.94	71	9.74	9.80	101
Florida	1.10	.70	64	14.48	11.73	81
Arkansas	.57	.41	72	12.08	13.82	114
North Carolina	.78	.41	52	11.94	11.87	99
Texas	.83	.60	72	12.36	10.85	88
Tennessee	.75	.52	69	12.36	11.33	92
Virginia	1.46	.80	55	11.87	10.04	85
Oklahoma	.71	.36	51	7.76	6.84	88
Vermont	3.10	1.61	52	7.72	7.93	103
New Mexico	.92	.47	51	[illegible]	[illegible]	[illegible]
Arizona	1.35	.75	65	7.69	7.14	[illegible]
Delaware	1.61	.83	51	10.77	[illegible]	[illegible]
Kentucky	1.02	.62	61	[illegible]	[illegible]	[illegible]
Maryland	1.15	.76	66	[illegible]	7.06	[illegible]
Nevada	1.00	.69	[illegible]	[illegible]	5.30	[illegible]
Maine	2.42	1.29	53	[illegible]	5.90	[illegible]
Washington	1.22	.61	50	4.60	6.73	146
California	1.82	.92	50	[illegible]	5.18	107
Kansas	.91	.55	60	[illegible]	[illegible]	113
Colorado	1.17	[illegible]	46	[illegible]	[illegible]	[illegible]
South Dakota	1.07	.65	61	[illegible]	[illegible]	[illegible]
West Virginia	1.63	1.03	[illegible]	[illegible]	[illegible]	[illegible]
Oregon	1.23	.64	[illegible]	[illegible]	[illegible]	[illegible]
Wyoming	.74	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
New York	2.05	1.37	[illegible]	[illegible]	[illegible]	[illegible]
Idaho	.70	.36	52	[illegible]	7.31	[illegible]
Montana	.72	.46	63	[illegible]	[illegible]	[illegible]
Nebraska	1.02	.64	63	[illegible]	[illegible]	[illegible]
Michigan	1.31	.75	57	[illegible]	[illegible]	[illegible]
Missouri	1.02	.55	54	5.40	[illegible]	[illegible]
Indiana	.57	.50	57	5.37	5.54	[illegible]
North Dakota	1.25	.83	66	4.26	7.59	177
Iowa	1.22	.71	58	5.19	6.09	117
Ohio	1.24	.71	57	[illegible]	5.35	[illegible]
Pennsylvania	1.36	.72	53	5.10	4.74	93
New Hampshire	1.54	.89	58	4.23	4.23	[illegible]
Minnesota	1.45	.79	54	3.95	5.56	[illegible]
Connecticut	1.97	1.36	69	3.53	3.76	[illegible]
New Jersey	1.35	.83	61	5.15	4.12	[illegible]
Illinois	1.16	.63	54	3.84	[illegible]	[illegible]
Massachusetts	1.76	.80	45	2.75	2.77	[illegible]
Utah	.50	.25	49	4.48	[illegible]	[illegible]
Rhode Island	1.28	.67	53	2.44	[illegible]	[illegible]
Wisconsin	1.25	.68	54	3.93	[illegible]	[illegible]

Source: Derived from U.S. Bureau of the Census, U.S. Census of Population: 1960.

F-LFP was introduced as companion of the variable F-UE to indicate the condition of the female labor market. It seems more appropriate, however to consider the female labor force as primarily secondary, and the condition of the female labor market a function of M-UE and M-LFP along with other variables indicated in equation (3) but excluding F-LFP.

Still another important consideration in the demand for labor for direct employment in private households is the composition of the population with respect to single persons. It is expected that the demand for private households labor will vary negatively with the percentage of the population that consists of unrelated individuals (URI).

It seems reasonable to posit substitutability between live-in and live-out domestics. It does not seem reasonable to posit substitutability between males and females in private households occupations. Thus the demand for males in private households occupations is not hypothesized here as functionally related to the female wage rate for domestics. Notwithstanding this nonsubstitutability, it does not appear to be unreasonable to anticipate a positive relationship between F-LFP and the rate of employment of males in private households occupations. A family in which the wife is employed outside of the home is a likely source of potential demand for, say, gardeners and other occupations included in private households that are staffed primarily by males.

It is difficult to conceptualize a theory of demand for labor for those occupations that are in the private households industry but not among private households occupations (see pages 7 and 8 for this distinction). The diversity of occupations in this category is wide. Because of this difficulty, it is hypothesized that for males or females for employment in occupations in the households industry but not in those classified as households occupations per se the item CHAR in equation (5) subsumes only URI and F-LFP.

For the group of occupations included under the heading laundry, cleaning, and dyeing operatives (LCDO), there seems likely to be a high degree of substitutability between male and female labor. Accordingly, the wage rate for males and females both in these occupations should be reflected in the demand functions for both males and females for these occupations. Another kind of competition for LCDO, male or female, is specialized equipment in households which washes and dries washable fabrics with relatively little labor input on the part of the user. As a matter of fact, using data from the 1960 Census of Housing to calculate the percentage of occupied housing units with washer and dryer, it was found that this percentage is highly correlated, negatively, with the LCDO rate of employment. Unfortunately, similar data for 1950 are not available, precluding the use of this variable in the model for LCDO.

Other variables that have been selected to represent special demand factors in the LCDO case are F-LFP, percentage of total employment classified as white collar (T-WCOL) and percentage of employment that is in the lodgings and restaurant industries, (HANDE). T-WCOL represents a specialized demand for laundry and dry cleaning stemming from the general requirement for a neat appearance in these occupations. HANDE represents another specialized demand for laundering and dry cleaning, not only from waiters and waitresses in restaurants but also from the linen requirements of restaurants and lodging places.

For barbers, specialized demands may be expected to derive from male white collar workers (M-WCOL) and from male waiters (M-WAIT). For beauticians, these particular sources of demand are female white collar workers (F-WCOL) and waitresses (F-WAIT). For both white collar workers and waiters or waitresses in restaurants, appearance is important, so that in addition to specialized clothing care requirements, they also register specialized demands for the trades involving cosmetology.

Similarly, the demand for the services of shoe repairers can be expected to be related to HANDE and T-WCOL variables.

Obviously a number of factors that were discussed in Chapter IV have not been introduced for consideration in the models presented in this chapter. There has been no

consideration, for example, of the value of time per se and the effect of the time input required for the purchase of routine personal services associated with cosmetology. There has also been very little consideration of the substitution effect among routine personal services. Only in the case of substitution between F-HHOin and F-HHOout and between males and females for employment in LCDO was the matter of substitution considered. But it is obvious that domestics are substitutes to some extent for the services of laundries and dry cleaners, and that within the group of industries designated as laundry, dyeing, and cleaning there is competition among types of establishments. Laundromats, for example, compete with power laundries. The primary reason for ignoring these other relevant factors in the analysis is lack of good data.

Statistical Considerations

Another reason for not introducing additional factors, or marginal theoretical value compared with those already considered as most germane, is that the regressions simply became bogged down with too many variables. Not only are critical degrees of freedom lost with too many variables, other problems such as multicollinearity cause additional difficulties when the regressions become excessively loaded with variables. Indeed, the equations specified thus far suffer from this difficulty.

Before discussing multicollinearity, it seems worthwhile to bring up the matter of a simple data limitation which affects the variables designated as indicating affluence. This problem was alluded to at the outset of this chapter, and derives from the fact that the state income data for families pertain to all of the families in the state: those who are suppliers of routine personal services as well as those who are demanders of them. Fortunately, a very nice method for avoiding this problem altogether exists. Stigler, it may be recalled (see page 22) observed that income distribution is a relevant factor in both the demand for and the supply of domestics. Since Gini indexes for states may be calculated from available data it is appropriate to include Gini index (GINI) as a variable in the demand and supply functions, removing D-AFFL from the demand equations (equation 5) and S-AFFL from the supply equations (equations 3 and 4).

Introducing GINI creates other problems for NON is highly positively correlated with GINI and FBW is highly negatively correlated with it. Several preliminary attempts to get significant regression results for particular routine personal service occupation groups suggested that FBW is a relevant factor in the supply of female domestics, living-in while GINI is the relevant factor to include in the other regressions. Accordingly, for F-HHOin, two models seem worth testing: one with FBW as a supply factor and one with

GINI as a supply factor. For all other occupation groups, GINI is the appropriate variable in the supply equation, and NON, FBW, and S-AFFL need to be deleted altogether from the supply equation. Parenthetically, it seems worth pointing out at this juncture that the high correlation between GINI and NON suggests that the presence of nonwhites is a major determinant of income inequality. It may also be worth observing that FBW is fairly highly positively correlated with median family income while GINI is fairly highly negatively correlated with median income.

Another source of multicollinearity is found in the data on wage rates. In equation 5, P_{rps} is highly correlated with OC, the latter defined by Mincer simply as the going wage rate for females. An appropriate transformation involves calculating OC as a percentage of P_{rps} which is, in this model the same as W_{rps}. This new variable, call it PCNR, is in fact a better representation of opportunity cost than the simple market wage rate that the wife may earn inasmuch as PCNR is an expression of the net value of the routine personal service that may be purchased to replace home production. Moreover, it may be considered as a relative price variable. This is so because the general level of prices (PRICES in equation 5) seems likely to be reflected in the general level of wages. Viewed in this manner, PCNR replaces P_{rps}, PRICES, and OC in equation (5). Now obviously, there is no way to separate the price

relationship (which is relevant in the consideration of the household as a consuming unit, abstracted from its role as a production unit) from the wage relationship (which is relevant to the consideration of the household as a production unit which substitutes purchased routine personal services to release a family member for remunerative labor). But in any case, data for PRICES are simply not available.

How does this transformation affect the supply equation? Unfortunately, PCNR is highly negatively correlated with P_{rps} for all of the routine personal services. Consequently, PCNR must replace P_{rps} in the supply equation if prices are to be considered as factors in both the demand and supply equations.

One additional instance of relatively high correlation is that found to exist between M-UE and F-UE. Accordingly, it seems appropriate to drop F-UE from all regressions.

These changes and deletions result in:

$$\text{Supply RPS} = f_1 + f_2\ \text{M-UE} + f_3\ \text{M-LFP} + f_4\ \text{PCNR} + f_5\ \text{GINI} + f_6\ \text{ALT} \qquad (6)$$

$$\text{Demand RPS} = g_1 + g_2\ \text{PCNR} + g_3\ \text{GINI} + g_4\ \text{CHAR} \qquad (7)$$

except, as noted above, for an alternative model of F-HHOin in which FBW replaces GINI in the supply function. CHAR, in equation (7) is a general term which may be interpreted as

referring to particular factors affecting each of the separate routine personal service occupation groups. The variables selected to reflect ALT are for females, the percentage employed outside of the private households industry that are employed as manufacturing operatives (F-MOP), for males, the percentage employed outside of the private households industry that are employed as operatives of all kinds (M-OPS), and for males and females taken together, the percentage employed in manufacturing industries (F-MFG).

CHAPTER VI

RESULTS OF TESTS

The reduced form equations for equations 6 and 7 are:

$$\text{PCNR} = j_1 + j_2\ \text{GINI} + j_3\ \text{M-UE} + j_4\ \text{M-LFP} + j_5\ \text{ALT} + j_6\ \text{CHAR} \tag{8}$$

$$\text{RPS} = k_1 + k_2\ \text{GINI} + k_3\ \text{M-UE} + k_4\ \text{M-LFP} + k_5\ \text{ALT} + k_6\ \text{CHAR}. \tag{9}$$

The coefficients of these reduced forms expressed in terms of the original structural supply and demand equations (equations 6 and 7) are:

$$j_2 = \frac{f_5 - g_3}{g_2 - f_4}, \qquad j_3 = \frac{f_2}{g_2 - f_4}, \qquad j_4 = \frac{f_3}{g_2 - f_4},$$

$$j_5 = \frac{f_6}{g_2 - f_4}, \qquad j_6 = \frac{-g_4}{g_2 - f_4} \qquad k_2 = \frac{g_3\ f_4 - g_2\ f_5}{f_4 - g_2}$$

$$k_3 = \frac{-g_2\ f_2}{f_4 - g_2}, \qquad k_4 = \frac{-g_2\ f_3}{f_4 - g_2}, \qquad k_5 = \frac{-g_2\ f_6}{f_4 - g_2},$$

$$k_6 = \frac{f_4\ g_4}{f_4 - g_2}.$$

Accordingly, the expected signs of the coefficients in the reduced forms are:

j_2 indeterminate; if f_5 is greater than g_3 the sign is positive; if g_3 is greater than f_5 the sign is negative;

j_3, k_2, k_3 positive;

j_4, j_5, k_4, k_5 negative;

j_6 if the structural coefficient for the particular CHAR is positive, j_6 is negative, and vice versa;

k_6 if the structural coefficient for the particular CHAR is positive, k_6 is negative and vice versa.

In other words, the coefficients for M-UE in both reduced form equations are expected to be positive while those for M-LFP and ALT are expected to be negative. For CHAR, the coefficient is expected to be opposite its expected structural value in the PCNR reduced form, and the same as its expected structural value in the RPA reduced form.

Table 3 has been prepared to assist the reader in locating the meanings of the abbreviations which appear in the analytical tables that follow and in much of the subsequent narrative material. Besides identifying the notation, the table reveals the sources of the underlying data.

TABLE 3.--Abbreviations employed to designate variables, and sources of data.

Abbreviation	Variable	Source
F-HHOout	Females employed in households occupations, living-out as a percentage of total employed females	U.S. Census of Population: 1960 and U.S. Census of Population: 1950
F-HHOin	Females employed in households occupations, living-in as a percentage of total employed females	Same as above
F-HHI-O	Females employed in households industry but not in households occupations	Same as above
M-HHO	Males employed in households occupations as a percentage of total employed males	Same as above
M-HHI-O	Males employed in households industry but not in households occupations	Same as above
T-LCDO	Males and females employed in laundry, cleaning, and dyeing occupations as a percentage of all employed persons	Same as above
F-LCDO	Females employed in laundry, cleaning, and dyeing occupations as a percentage of total employed females	Same as above
M-LCDO	Males employed in laundry, cleaning, and dyeing occupations as a percentage of total employed males	Same as above
F-BEA	Females employed in hairdressing and cosmetology occupations as a percentage of total employed females	Same as above
M-BAR	Males employed in barbering occupations as a percentage of total employed males	Same as above
M-SO	Males employed in shoe repair occupations as a percentage of total employed males	Same as above
PCNR	For females calculated on the basis of average weekly income of females employed outside of the private households industry as a percentage of the average weekly income of females in the particular occupation group to which the equation pertains. For males calculated on the basis of average weekly income of all employed males as a percentage of average weekly income of males in the particular occupation group to which the equation pertains. Another exception for males was made in the case of M-LCDO where PCNR indicates the average weekly income of all employed females outside of the private households industry as a percentage of average weekly income of males in laundry, cleaning, and dyeing occupations. In the case of T-LCDO, the variable PCNR represents average weekly income of all employed females outside of the private households industry as a percentage of average weekly income (weighted) of all persons employed in T-LCDO. For M-HHO and M-HHI-O, PCNR represents average weekly income of all employed males as a percentage of average weekly income of males employed in the private households industry.	For F-HHOin, F-HHOout, F-HHI-O, T-LCDO, M-LCDO, F-LCDO, calculated from data in the U.S. Census of Population: 1960 and U.S. Census of Population: 1950. For F-BEA, M-BAR, and M-SO, calculations involved also data for barber shops, beauty shops, and shoe repair shops from the Census of Business: 1958 and the Census of Business: 1963.
GINI	Gini index for families and unrelated individuals	Calculated using data from the U.S. Census of Population: 1960 and the U.S. Census of Population: 1950 along with Individual Income Tax Returns for 1960 and Individual Income Tax Returns for 1954. For methodology see David I. Verway, "A Ranking of States by Inequality Using Census and Tax Data" in The Review of Economics and Statistics (August, 1965).

TABLE 3.--Continued.

Abbreviation	Variable	Source
M-UE	Male unemployment as a percentage of male civilian labor force	U.S. Census of Population: 1970.
M-LFP	Males in the total labor force as a percentage of males 14 years old and over	Same as above
F-MOP	Females employed as manufacturing operatives as a percentage of females employed outside of the private households industry	Same as above
M-OPS	Males employed as operatives and kindred workers as a percentage of males employed outside of the households industry	Same as above
T-MFG	Males and females employed in manufacturing industries as a percentage of total males employed	Same as above
URI	Unrelated individuals as a percentage of total population	U.S. Census of Population: [illegible]
F-LFP	Females in the total labor force as a percentage of females 14 years old and over	U.S. Census of Population: 1970
FCIO	Average weekly income of females employed in the households occupations, living-in, as a percentage of average weekly income of females employed in the households occupations, living-out	U.S. Census of [illegible]
FBW	Foreign born white population as a percentage of the total population	Same as above
T-WCOL	Males and females employed in white collar occupations as a percentage of total persons employed	U.S. Census of [illegible]
F-WCOL	Females employed in white collar occupations as a percentage of total females employed	Same as above
M-WCOL	Males employed in white collar occupations as a percentage of total males employed	Same as above
HANDE	Persons employed in motels and eating places as a percentage of total persons employed	U.S. Census of [illegible]
RATIO	Average weekly income of males employed in the laundering, cleaning, and dyeing occupations as a percentage of average weekly income of females employed in the laundering, cleaning, and dyeing occupations	Same as above
F-WAIT	Females employed as waitresses as a percentage of total females employed	U.S. Census of Population: 1970
M-WAIT	Males employed as waiters and bartenders as a percentage of total males employed	Same as above

The results of the regressions themselves are presented in Tables 4 through 39 which appear at the end of this chapter. In Table 4 it will be seen that the two-stage least squares regression produced equations in which only GINI and URI are significant at the .95 level in the reduced forms and only PCNRhat is significant in the supply structural equation. That GINI is positive in the F-HHOout reduced form lends some support to the hypothesis regarding the influence of income distribution. URI has the expected sign in the F-HHOout reduced form but the sign is opposite that anticipated in the PCNR reduced form equation. The sign of PCNRhat in the structural supply equation (equation 4-c) is opposite that anticipated.

It will be recalled that Stigler, in one of his analyses, ran some regressions that excluded southern states (see page 23). Inasmuch as southern states will differ in many respects from the rest of the country, and in characteristics that are particularly relevant in a study such as this one, it is appropriate to remove the effect of this possible source of bias. This was accomplished in the present study by removing from the regressions the data from Alabama, Arkansas, the District of Columbia, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. The results using data for the 37 states remaining in the universe are shown in the lower panel of the tables. In Table 4, it will be

seen that the only effect of removing southern states has been the elimination of URI from any of the equations as a significant variable.

There are three possible explanations for the positive sign of PCNR in the supply function. One is that the supply function for domestic labor, living-out is indeed negatively inclined. Another is that there is some flaw in the variable PCNR or in the logic underlying its use. In order to eliminate this possibility other regressions, using the actual wage rate for live-out domestics in the place of PCNR were run. The results accord with those indicated in Table 4. The wage rate for domestics is negatively correlated with the dependent variable in every regression which is intended to estimate the supply function, indicating a strong negative relationship between the wage rate and the observed F-HHOout rate. In simple correlation, the wage rate and the F-HHOout rate are highly negatively correlated while the PCNR rate and F-HHOout are highly positively correlated. The third possibility is that the observed relationship between PCNR and F-HHOout strongly identifies the demand relationship, and that PCNR is either not an appropriate variable to include in the F-HHOout supply function, or the supply function is more complex than is presumed in these regressions.

That GINI is positively correlated in the PCNR reduced form equation (equation 4-a) indicates that the

effect of income distribution may be of greater consequence in the supply function for live-out domestics than it is in the demand function. Unfortunately GINI did not enter strongly into either of the structural equations (4-c or 4-d) so that its relationship to both the supply and demand for live-out domestics remains a matter of some conjecture. Still, it will be observed that it approaches significance in the demand equation (4-d).

Except for PCIO, the statistical significance of the remaining variables is so low that the results cannot be interpreted. Although PCIO is not significant at the 95 per cent level, its standard error is somewhat less than the value of its regression coefficient in both of the reduced form equations using 49 states in the regressions and in the PCNR reduced form equation in the regressions using 37 states. PCIO, one of the variables subsumed under the term CHAR in equation 7, is expected to be positively related to the demand for live-out domestics, the idea being that the greater the wage spread between live-in and live-out domestics, other things equal, the greater will be the demand for live-out domestics. In equations (4-a) and (4-e), accordingly, the sign of the coefficient should have been negative. The regression coefficient in (4-b) does have the appropriate sign.

The regressions using the 1960 data (Table 5) are much the same as those resulting for 1950. The results for PCNR,

GINI, and URI are about the same as those indicated for 1950, although the magnitude of the numbers is different. For PCIO, for 1960 using only the 37 nonsouthern states in the regressions, the reduced form results are highly significant in the F-HHOout equation. However the sign is opposite that expected. On the other hand, the coefficient is negative in the equation (5-e), though rather far below an acceptable level of significance. Also in the regressions for 37 states, M-UE enters significantly in the F-HHOout reduced form equation and F-MOP enters significantly in both of them. The values of the coefficients for both M-UE and F-MOP have the proper algebraic sign.

In Table 6, which pertains to the 1960/1950 regressions, PCNR is positively correlated with the dependent variable in the supply function. Inasmuch as the 1960/1950 regressions constitute what may be considered another kind of test, somewhat independent from those shown in Tables 4 and 5, it seems appropriate to conclude that the variable PCNR is strongly positively associated with the dependent variable. This strong positive relationship casts serious doubt on the validity of including it as a factor in the supply function for live-out domestics. In view of these results, it seems plausible that for the range of values indicated in the underlying data on wages, the supply of live-out domestics is independent of their wage rate.

URI, in the regressions shown in Table 6 behaves in the same manner as it does in those indicated in Tables 4 and 5. PCIO has the appropriate sign in equations (6-b) and (6-f), but its sign is opposite that anticipated in equation (6-a). It will also be observed in Table 6 that F-LFP is significant in both reduced form equations with 49 states or 37 states in the regressions. Its sign in equations (6-b) and (6-f) are appropriate, but its sign in the other two equations is opposite that expected.

For F-HHOin, it may be recalled, two models were proposed in the previous chapter: one with GINI in the supply equation and the other with FBW in the supply equation. The regression results are shown in Tables 7 through 12.

Insofar as they are significant, the results for URI in the regressions for F-HHOin are uniformly opposite those anticipated. In Model I, there is some evidence also of a positive relationship between F-HHOin and F-MOP which is contrary to the expected result, but in Model II F-MOP is insignificantly correlated in all of the regressions. In Model II, FBW should enter the appropriate equations with positive sign. But in the PCNR reduced forms, where it enters significantly, the sign is negative. The behavior of PCIO is similarly puzzling. Its structural relationship in the demand equation is expected to be negative, the idea being that the greater the value of PCIO, the greater will

be the tendency to substitute live-out domestics for live-in domestics. Accordingly, in the PCIO reduced form, the sign of PCIO should be positive. But it is negative in every PCNR reduced form equation in both models. On the other hand, where it does enter the demand equation significantly, equations (8-h), (10-d), (11-d), and (11-h), its sign is negative.

For F-HHI-O, there is some indication in Tables 13 and 15 of a negative relationship with M-LFP, and in Table 14 of a positive relationship with GINI. On the other hand, the results for GINI in Table 15 are opposite those expected.

For M-HHO (Tables 16, 17, and 18) and M-HHI-O (Tables 19, 20, and 21), there is evidence of a positive relationship with GINI in the 1950 and 1960 regressions, but the regressions, insofar as the results are significant seem to indicate a negative relationship between M-HHO and M-HHI-O for 1960/1950. M-UE behaves similarly to GINI. For M-HHO there is evidence of a positive association with M-UE in both 1950 and 1960, but the relationship is negative for 1960/1950 regressions for the M-HHO and M-HHI-O reduced forms is that expected. For 1950, for both M-HHO and M-HHI-O, there is evidence of a positive association with F-LFP, and for M-HHO, the association carries over into the 1960 regressions. But for 1960/1950, the results are mixed. The signs are appropriate for the theory in (18-b), (18-f),

(21-b) and (21-f), but opposite that anticipated in (18-a), (18-e), (21-a) and (21-e).

The regression results for laundry, cleaning, and dyeing occupations are given in Tables 22 through 30. For T-LCDO and M-LCDO, the results for the variable PCNR are similar to those for F-HHOout. The relationship, wherever it is significant, is positive in both the supply and the demand equations. GINI is also positively correlated in every regression where it is significant. The results for F-LCDO and F-MOP and for T-LCDO and T-MFG are as anticipated for the supply equations for 1950 and 1960, and similarly for M-LCDO and M-OPS for 1950. On the other hand, in the reduced forms, in equations (28-e), (28-f), (29-a) and (29-e), M-OPS correlates positively with the dependent variable. It would also appear from the regressions that HANDE is a significant source of demand for the laundry, cleaning and dyeing occupations. In Tables 25 through 30, it will be seen that where the variable RATIO is significant the implication is that it is negative in the demand relationship for F-LCDO and positive in the demand relationship for M-LCDO. This indicates that the greater the male wage rate in LCDO with respect to that for females, the greater the substitution of male for female labor, a result opposite that which was anticipated.

For F-BEA (Tables 31, 32, and 33) the coefficients are mostly insignificant and there is no discernible pattern

in the regressions which might allow one to make a generalization. For M-BAR the numbers in Tables 34, 35, and 36 suggest that M-WCOL is an important element in the demand function. PCNR, where it is significant, behaves adversely while M-UE, in the structural supply equations enters with appropriate sign in those equations where it is significant (34-c, 34-g, 36-c, 36-g). For M-OPS, the results are inconclusive since the sign is proper in (34-c) and (34-g), but opposite that anticipated in (36-g).

The results for M-SO (Tables 37, 38, and 39) reveal a strong positive relationship with T-WCOL and a strong negative relationship with HANDE for 1950. For 1960, T-WCOL is positively correlated with the dependent variable in the regressions for 49 states (equations 38-b and 38-d) while the implication is that HANDE is positively correlated in the demand relationship (as suggested by the sign in the reduced forms 38-a and 38-e). Similarly, for 1960/1950, equations (39-a) and (39-e) would tend to indicate a positive demand relationship for the variable HANDE.

TABLE 4.--Two-state least squares regression results for the rate of employment of females in households occupations--living out: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO
49 observations									
(a) PCNR	- 21.09		+ 434.1* (146.9)	- 1.687 (2.647)	+ .681 (1.978)	- .267 (.374)	- 7.042* (2.335)	+ .535 (.780)	+ .300 (.246)
(b) F-HHOout	- 51.23		+ 102.0* (20.0)	+ .225 (.360)	+ .206 (.269)	- .008 (.106)	- 1.231* (.318)	+ .089 (.106)	+ .043 (.033)
(c) Supply	- 46.10	+ .172* (.049)	+ 24.54 (25.45)	- .489 (.343)	- .070 (.218)	- .020 (.038)			
(d) Demand	- 35.01	+ .052 (.064)	+ 60.77 (31.54)				- .425 (.477)	+ .023 (.068)	+ .017 (.032)
37 observations									
(e) PCNR	+203.3		+ 198.1 (137.0)	- 1.693 (2.316)	-1.116 (2.063)	- .295 (.619)	- 2.459 (2.[illegible]43)	- .471 (2.843)	+ .389 (.230)
(f) F-HHOout	- 27.61		+ 55.57* (12.73)	+ .324 (.[illegible])	+ .157 (.193)	- .062 (.057)	- .532 (.263)	- .042 (.180)	+ .015 (.021)
(g) Supply	- 34.75	+ .[illegible]* (.03[illegible])	+ [illegible].72* (11.72)	+ .266 (.175)	+ .117 (.133)	- .016 (.025)			
(h) Demand	- 6.449	- .053 (.144)	+ 53.46 (59.05)				- .334 (.402)	- .230 (.262)	+ .04[illegible] (.067)

*Indicates significance at the 05 per cent level.

TABLE 5.--Two stage least squares regression results for the rate of employment of females in households occupations--living-out: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO
49 observations									
(a) PCNR	- 165.4		+ 635.3* (184.1)	+ 3.900 (4.045)	+ 2.544 (2.359)	+ .023 (.481)	- 9.758* (2.831)	- .746 (1.113)	+ .128 (.404)
(b) F-HHOout	- 29.22		+ 92.20* (21.15)	+ .214 (.465)	- .010 (.271)	- .0005 (.0552)	- .938* (.325)	+ .030 (.128)	+ .020 (.046)
(c) Supply	- 21.57	+ .090* (.023)	+ 40.97 (20.41)	- .127 (.323)	- .133 (.160)	+ .014 (.036)			
(d) Demand	- 29.59	+ .017 (.079)	+ 83.22* (40.13)				- .738 (.774)	+ .007 (.100)	+ .020 (.043)
37 observations									
(e) PCNR	+ 192.4		+ 175.0 (146.5)	+ 3.325 ([illegible])	+ .040 (2.495)	-1.399* (.608)	- 4.623 (3.976)	+ .840 (2.759)	- .315 (.299)
(f) F-HHOout	- 20.55		+ [illegible]* ([illegible])	+ .447* (.164)	+ .215 (.144)	- .064* (.035)	- .302 (.230)	+ .014 (.160)	- .073* (.017)
(g) Supply	- 40.47	+ [illegible]* ([illegible])	+ 1.73[illegible] ([illegible])	- .104 (.33[illegible])	+ .1[illegible] (.1[illegible])	+ .069 ([illegible])			
(h) Demand	- 22.95	+ [illegible]* (.024)	+ 1.23[illegible] (1.16[illegible])				- .015 (.105)	+ .048 (.135)	- .039 (.025)

*Indicates significance at the 95 per cent level.

TABLE 6.--Two-stage least squares regression results for the rate of employment of females in households occupations--living-out: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO
49 observations									
(a) PCNR	+ 227.8		- .537 (.312)	- .054 (.045)	- 1.499* (.541)	- .004 (.025)	- .297* (.085)	+ .713* (.151)	+ .409* (.071)
(b) F-HHOout	+ 260.5		- .458 (1.077)	- .110 (.154)	- 2.845 (1.863)	- .041 (.036)	-1.006* (.294)	+1.891* (.522)	+ .562* (.246)
(c) Supply	- 261.4	+ 2.104* (.424)	+ .02[illegible] (.9[illegible])	+ .094 (.124)	+ 1.022 (1.501)	+ .020 (.067)			
(d) Demand	- 156.6	+ 1.592 (.996)	+ .46[illegible] (.75[illegible])				- .450 (.301)	+ .460 (.763)	- .197 (.410)
37 observations									
(e) PCNR	+ 147.7		- .25[illegible] (.353)	- .019 (.045)	- .741 (.627)	- .0[illegible]5 (.024)	- .489* (.113)	+ .63[illegible]* (.16[illegible])	+ .447 (.076)
(f) F-HHOout	+ 36[illegible].7		- [illegible] (1.35[illegible])	- .13[illegible] (.171)	- 4.225 (2.402)	- .053 (.094)	-1.191* (.433)	+2.01[illegible]* (.644)	+ .604* (.292)
(g) Supply	+ [illegible].02	+ 2.1[illegible]3* (.471	- .2[illegible] (1.11[illegible])	- [illegible] (.142)	- [illegible].210 (2.149)	+ .073 (.077)			
(h) Demand	- 381.7	+ 3.95[illegible] (2.143)	+1.2[illegible]1 (1.21[illegible])				+ .728 (1.144)	- .502 (1.344)	-1.188 (1.016)

*Indicates significance at the 95 per cent level.

TABLE 7.--Two-stage least squares regression results for the rate of employment of females in households occupations--living-in, model I: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO
49 observations									
(a) PCNR	+ 247.7		+ 362.3* (153.2)	-1.826 (2.759)	+ .094 (2.062)	- .368 (.390)	-7.117* (2.435)	+ .243 (.814)	-1.468* (.256)
(b) F-HHOin	+ 5.705		- .466 (2.375)	+ .028 (.054)	- .065 (.040)	+ .018* (.008)	+ .142* (.047)	+ .011 (.016)	- .010 (.005)
(c) Supply	+ 2.784	- .0005 (.0030)	- 2.138 (2.399)	+ .116* (.054)	- .016 (.041)	+ .011 (.007)			
(d) Demand	+ 11.16	- .044 (.027)	+ 17.08 (12.25)				- .197 (.203)	+ .017 (.030)	- .074 (.040)
37 observations									
(e) PCNR	+ 362.7		+ 162.8 (140.9)	-1.394 (2.358)	- .428 (2.121)	+ .209 (.630)	-1.090 (2.895)	-2.851 (1.976)	-1.272* (.235)
(f) F-HHOin	+ 1.700		+ 4.253 (3.383)	+ .037 (.057)	- .028 (.051)	+ .032* (.015)	+ .107 (.070)	- .033 (.048)	- .006 (.006)
(g) Supply	- .257	+ .002 (.004)	+ 3.869 (3.231)	+ .079 (.053)	- .016 (.045)	+ .021* (.007)			
(h) Demand	- 5.775	+ .014 (.050)	+ .634 (9.947)				+ .033 (.126)	+ .096 (.130)	+ .009 (.064)

*Indicates significance at the 95 per cent level.

TABLE 8.--Two-stage least squares regression results for the rate of employment of females in households occupations--living-in, model I: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO
49 observations									
(a) PCNR	+ 59.98		+ 627.3* (177.5)	+4.249 (3.900)	+2.375 (2.274)	+ .069 (.464)	-9.013* (2.730)	- .700 (1.073)	-2.417* (.389)
(b) F-HHOin	+ .413		- .752 (2.111)	+ .072 (.046)	- .008 (.027)	+ .007 (.006)	+ .085* (.032)	+ .025 (.013)	- .007 (.005)
(c) Supply	- .264	- .0008 (.0017)	- .986 (2.136)	+ .058 (.084)	+ .016 (.025)	+ .007 (.006)			
(d) Demand	+ .612	- .0005 (.0084)	- .486 (4.129)				+ .070 (.078)	+ .016 (.011)	- .006 (.020)
37 observations									
(e) PCNR	+375.5		+ 199.5 (184.5)	+3.971 (2.984)	+ .707 (2.631)	-1.287 (.641)	-4.829 (4.193)	+1.096 (2.909)	-2.857* (.316)
(f) F-HHOin	- .274		+ 3.622 (2.388)	+ .067 (.046)	- .029 (.041)	+ .013 (.010)	+ .003 (.065)	+ .048 (.045)	- .005 (.005)
(g) Supply	- 2.670	+ .0007 (.0017)	+ 4.029 (2.363)	+ .066 (.046)	+ .012 (.026)	+ .023* (.007)			
(h) Demand	+ 4.177	- .010 (.005)	+ 3.950 (2.487)				+ .011 (.056)	+ .007 (.027)	- .030* (.014)

*Indicates significance at the 95 per cent level.

TABLE 9.--Two-stage least squares regression results for the rate of employment of females in households occupations--living-in, model I: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO
49 observations									
(a) PCNR	+ 426.8		- .720* (.344)	- .073 (.051)	-2.052* (.618)	+ .005 (.032)	- .365* (.096)	+ .693* (.188)	- .731* (.080)
(b) F-HHOin	+ 99.58		+ .455 (.434)	+ .021 (.064)	- .674 (.773)	+ .002 (.041)	+ .113 (.121)	- .223 (.236)	- .067 (.100)
(c) Supply	+ 137.2	- .023 (.104)	+ .416 (.459)	- .017 (.055)	-1.162 (.710)	- .016 (.034)			
(d) Demand	- 74.24	+ .405 (.378)	+ .674* (.339)				+ .254 (.146)	- .426 (.313)	+ .232 (.319)
37 observations									
(e) PCNR	+ 391.6		- .[illegible] (.413)	- .049 (.054)	-1.633* (.756)	- .015 (.034)	- .517* (.136)	+ .637* (.226)	- .701* (.092)
(f) F-HHOin	+ 36.35		+ .[illegible] (.[illegible])	+ .044 (.068)	+ .078 (.954)	- .016 (.043)	+ .124 (.172)	- .066 (.286)	- .005 (.116)
(g) Supply	+ 61.84	- .062 (.106)	+ .043 (.512)	+ .035 (.059)	- .047 (.908)	- .021 (.035)			
(h) Demand	+ 4.275	+ .164 (.548)	+ .153 (.483)				+ .200 (.339)	- .137 (.367)	+ .112 (.404)

*Indicates significance at the 95 per cent level.

TABLE 10.--Two-stage least squares regression results for the rate of employment of females in households occupations--living-in, model II: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO	FBW
49 observations										
(a) PCNR	+ 218.7		+207.8 (128.5)	+2.322 (2.399)	+ .800 (1.676)	+ .157 (.337)	-4.061 (2.074)	+1.036 (.680)	-1.499* (.207)	-4.636* (.977)
(b) F-HHOin	+ 6.064		+ 1.569 (2.[illegible])	- .024 (.054)	- .074 (.038)	+ .011 (.008)	+ .104* (.047)	+ .001 (.015)	- .010* (.005)	+ .057* (.022)
(c) Supply	+ 4.105	+ .003 (.003)		+ .014 (.053)	- .052 (.035)	+ .001 (.007)				+ .086 (.025)
(d) Demand	+ 4.845	- .017* (.006)	+ 5.321 (3.349)				- .011 (.059)	+ .022 (.016)	- .035* (.010)	
37 observations										
(e) PCNR	+ 308.8		+118.0 (128.5)	+ .724 (.[illegible])	+ .291 (1.948)	+ .468 (.581)	-1.360 (2.635)	-1.294 (1.890)	-1.257* (.213)	-3.025* (1.139)
(f) F-HHOin	+ 2.979		+ 5.030 (3.[illegible])	+ .00[illegible] (.059)	- .041 (.050)	+ .028 (.015)	+ .112 (.067)	- .060 (.048)	- .006 (.005)	+ .052 (.029)
(g) Supply	+ 5.256	+ .002 (.004)		+ .011 (.054)	- .064 (.043)	+ .009 (.010)				+ .055 (.033)
(h) Demand	+ 4.115	- .015 (.012)	+ 6.149 (4.367)				- .030 (.066)	+ .021 (.041)	- .028 (.017)	

*Indicates significance at the 95 per cent level.

TABLE 11.--Two-stage least squares regression results for the rate of employment of females in households occupations--living-in, model II: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO	FBW
49 observations										
(a) PCNR	+152.1		+304.0 (152.5)	+6.171 (3.078)	+2.213 (1.787)	+ .565 (.376)	-4.058 (2.343)	+ .716 (.884)	-2.150* (.309)	-6.408* (1.238)
(b) F-HHOin	- .641		+ 2.947 (1.858)	+ .050 (.038)	+ .00002 (.02178)	+ .0008 (.0046	+ .028 (.029)	+ .009 (.011)	- .010* (.004)	+ .073* (.015)
(c) Supply	+ .517	+ .004* (.002)		+ .003 (.037)	- .015 (.016)	- .003 (.005)				+ .103* (.021)
(d) Demand	+ 4.057	- .010* (.003)	+ 3.967* (1.922)				- 0.11 (.039)	+ .011 (.010)	- .029* (.008)	
37 observations										
(e) PCNR	+349.5		+148.4 (136.1)	+5.226 (2.639)	+ .480 (2.301)	- .677 (.593)	-4.411 (3.668)	+2.595 (2.587)	-2.673* (.292)	-2.887* (1.232)
(f) F-HHOin	+ .140		+ 4.668* (2.081)	+ .047 (.040)	- .026 (.035)	+ .003 (.009)	- .004 (.056)	+ .025 (.040)	- .008 (.004)	+ .062* (.019)
(g) Supply	+ 2.730	+ .002 (.002)		+ .0004 (.0383)	- .037 (.021)	+ .003 (.007)				+ .074* (.021)
(h) Demand	+ 5.385	- .013* (.004)	+ 4.184 (2.533)				+ .011 (.059)	+ .002 (.027)	- .036* (.012)	

*Indicates significance at the 95 per cent level.

TABLE 12.--Two-stage least squares regression results for the rate of employment of females in households occupations--living-in, model II: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP	PCIO	FBW
49 observations										
(a) PCNR	+452.5		- .544 (.345)	- .087 (.049)	-2.221* (.603)	+ .005 (.031)	- .291* (.100	+ .568* (.192)	- .790* (.082)	- .150 (.076)
(b) F-HHOin	+ 87.48		+ .372 (.452)	+ .025 (.065)	- .594 (.791)	+ .003 (.041)	+ .078 (.131)	- .164 (.252)	- .039 (.108)	+ .071 (.100)
(c) Supply	+152.5	- .047 (.094)		+ .011 (.056)	-1.001 (.713)	- .003 (.033)				+ .114 (.085)
(d) Demand	- 41.87	+ .204 (.319)	+ .339* (.373)				+ .207 (.135)	- .290 (.280)	+ .071 (.274)	
37 observations										
(e) PCNR	+351.4		- .273 (.407)	- .063 (.053)	-1.287 (.738)	- .021 (.032)	- .408* (.140)	+ .585* (.216)	- .757* (.091)	- .319* (.155)
(f) F-HHOin	+ 28.95		+ .115 (.550)	+ .040 (.070)	+ .160 (.999)	- .018 (.044)	+ .151 (.189)	- .078 (.292)	- .019 (.123)	- .078 (.210)
(g) Supply	+ 70.07	- .063 (.099)		+ .034 (.360)	- .068 (.866)	- .001 (.034)				- .024 (.180)
(h) Demand	- 2.233	+ .197 (.421)	+ .188 (.490)				+ .218 (.284)	- .155 (.317)	+ .136 (.321)	

*Indicates significance at the 95 per cent level.

TABLE 13.--Two-stage least-squares regression results for the rate of employment of females in the households industry but not in households occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP
49 observations								
(a) PCNR	- 26.90		+144.4 (174.0)	-2.743 (3.410)	+1.435 (2.551)	- .318 (.482)	+ .762 (2.938)	- .637 (1.002)
(b) F-HHI-O	+ 4.106		- .377 (.845)	- .017 (.017)	- .047* (.012)	+ .003 (.002)	+ .033* (.014)	- .004 (.005)
(c) Supply	+ 3.581	+ .008 (.016)	- 1.443 (2.759)	+ .025 (.051)	- .048 (.030)	+ .004 (.009)		
(d) Demand	+ .709	- .008 (.005)	+ 1.864 (1.593)				+ .021 (.020)	- .012 (.009)
37 observations								
(e) PCNR	+379.4		-284.2 (174.2)	-4.370 (3.027)	-3.063 (2.722)	-2.058* (.798)	+1.359 (3.706)	+4.932 (2.493)
(f) F-HHI-O	+ 4.447		+ .228 (.951)	- .027 (.017)	- .057* (.015)	- .0009 (.0044)	+ .022 (.020)	+ .010 (.014)
(g) Supply	+ 3.089	+ .004 (.002)	+ 1.225 (1.127)	- .007 (.017)	- .047* (.015)	+ .006 (.004)		
(h) Demand	- .094	- .001 (.002)	+ 1.197 (1.071)				+ .009 (.022)	+ .002 (.008)

*Indicates significance at the 95 per cent level.

TABLE 14.--Two-stage least squares regression results for the rate of employment of females in the households industry but not in households occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP
49 observations								
(a) PCNR	- 80.02		+401.4* (160.8)	+1.564 (3.574)	+2.199 (2.117)	- .782 (.435)	-8.261* (2.573)	-1.670 (.991)
(b) F-HHI-O	+ .492		+ 1.841* (.602)	- .014 (.013)	- .011 (.008)	- .002 (.002)	+ .006 (.010)	- .003 (.004)
(c) Supply	+ .685	- .0002 (.0010)	+ 1.739* (.686)	- .013 (.013)	- .013 (.007)	- .002 (.002)		
(d) Demand	- .597	- .00002 (.00138)	+ 2.443* (.566)				+ .005 (.013)	- .005 (.004)
37 observations								
(e) PCNR	+233.5		+ 6.829 (150.3)	+ .457 (2.829)	- .033 (2.620)	-2.090* (.642)	-1.718 (4.176)	-1.767 (2.860)
(f) F-HHI-O	- .075		+ 2.329* (.745)	- .016 (.014)	- .0007 (.0130)	+ .003 (.003)	+ .030 (.021)	- .022 (.014)
(g) Supply	+ .260	+ .0008 (.0031)	+ 2.521* (.757)	- .016 (.014)	- .014 (.010)	+ .001 (.008)		
(h) Demand	- .108	- .001 (.001)	+ 2.618* (.696)				+ .021 (.017)	- .020* (.009)

*Indicates significance at the 95 per cent level.

TABLE 15.--Two-stage least squares regression results for the rate of employment of females in the households industry but not in households occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	URI	F-LFP
49 observations								
(a) PCNR	+ 644.9		- 1.729 (1.399)	+ .181 (.210)	- 2.700 (2.504)	+ .240 (.135)	- .680 (.395	- .449 (.766)
(b) F-HHI-O	+ 989.3		- 2.206 (2.420)	+ .158 (.363)	- 8.042 (4.331)	- .148 (.233)	+ .156 (.683)	+ .798 (1.325)
(c) Supply	+ 1261.	- .415 (.967)	- 3.102 (3.059)	+ .320 (.377)	- 8.553 (4.347)	+ .016 (.264)		
(d) Demand	- 292.1	+ 1.140 (.718)	+ .856 (2.419)				+1.182 (.818)	+ .308 (1.237)
37 observations								
(e) PCNR	+ 1105.		- 3.872* (1.561)	+ .115 (.210)	- 6.365* (2.943)	+ .321* (.132)	+ .050 (.509)	- .105 (.856)
(f) F-HHI-O	+ 554.9		- 3.476* (1.533)	- .059 (.206)	- 6.144* (2.891)	- .236 (.129)	+ .824 (.500)	+3.483* (.841)
(g) Supply	+14800.	- 12.83 (72.97)	-51.71 (279.5)	+1.585 (7.682)	-86.14 (472.1)	+4.025 (22.68)		
(h) Demand	- 156.2	+ .275 (.271)	- 1.720 (1.544)				+ .728 (.552)	+2.458* (.778)

*Indicates significance at the 95 per cent level.

TABLE 16.--Two-stage least squares regression results for the rate of employment of males in households occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	URI	F-LFP
49 observations								
(a) PCNR	+155.5		+249.6 (171.2)	+ .247 (3.245)	- .705 (2.427)	- .136 (.833)	-4.725 (2.658)	+ .662 (.882)
(b) M-HHO	- .793		+ 2.005* (.308)	+ .005 (.006)	- .003 (.004)	+ .002 (.002)	- .005 (.005)	+ .011* (.002)
(c) Supply	- 1.970	+ .003 (.002)	+ 1.550 (.825)	+ .018 (.011)	+ .010 (.008)	+ .003 (.003)		
(d) Demand	- 1.473	+ .006 (.015)	+ .249 (4.054)				+ .022 (.070)	+ .008 (.010)
37 observations								
(e) PCNR	+108.1		+235.3 (215.2)	+ 1.389 (3.710)	+ .235 (3.144)	+ .432 (1.084)	-1.565 (3.703)	-1.614 (1.812)
(f) M-HHO	- 1.188		+ 1.768* (.308)	+ .012* (.005)	+ .003 (.005)	+ .002 (.002)	- .007 (.005)	+ .009* (.003)
(g) Supply	- .894	- .003 (.003)	+ 2.568* (.852)	+ .014 (.011)	+ .004 (.011)	+ .006 (.003)		
(h) Demand	- 1.724	+ .006 (.009)	+ .224 (2.007)				+ .005 (.025)	+ .020 (.012)

*Indicates significance at the 95 per cent level.

TABLE 17.--Two-stage least squares regression results for the rate of employment of males in households occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	URI	F-LFP
49 observations								
(a) PCNR	-201.3		+297.8 (343.6)	+10.22 (6.83)	+7.129) (4.287)	-1.799) (1.820)	- 9.343 (5.365)	- 4.305* (1.915)
(b) M-HHO	- .260		+ .819* (.298)	+ .014* (.006)	- .007 (.004)	+ .0004 (.0016)	- .007 (.005)	+ .017* (.002)
(c) Supply	- 1.245	- .0021* (.0003)	+ 2.009* (.750)	+ .029 (.017)	+ .012 (.009)	- .0003 (.0041)		
(d) Demand	- .504	- .0005 (.0004)	+ 1.100* (.232)				- .012* (.006)	+ .011* (.002)
37 observations								
(e) PCNR	+ 64.18		-290.7 (414.6)	+ 7.972 (7.610)	+8.570 (6.465)	-1.960 (2.829)	+ 7.816 (11.49)	-11.52 (6.28)
(f) M-HHO	- .291		+ .619 (.379)	+ .014 (.007)	- .006 (.006)	+ .0004 (.0026)	- .008 (.010)	+ .017* (.006)
(g) Supply	- .142	- .0016* (.0006)	+ .181 (.641)	+ .028* (.013)	+ .007 (.007)	- .003 (.005)		
(h) Demand	+ .015	- .0005 (.0004)	+ .171 (.390)				+ .005 (.009)	+ .004 (.005)

*Indicates significance at the 95 per cent level.

TABLE 18.--Two-stage least squares regression results for the rate of employment of males in households occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	URI	F-LFP
49 observations								
(a) PCNR	- 122.0		- .583 (.864)	+ .008 (.124)	+ .224 (1.553)	- .169 (.208)	- .403 (.251)	+ 2.009* (.441)
(b) M-HHO	+ 492.3		- .689 (1.111)	- .272 (.160)	-4.639* (1.997)	+ .284 (.267)	-1.082* (.323)	+ 1.884* (.567)
(c) Supply	+ 450.2	+ 1.152* (.352)	-1.428 (1.484)	- .250 (.215)	-3.961 (2.639)	+ .279 (.313)		
(d) Demand	- 290.6	- 2.686 (3.344)	+1.265 (2.474				-1.987 (1.728)	+ 6.923 (6.133)
37 observations								
(e) PCNR	- 147.6		+2.086* (.963)	- .007 (.132)	- .290 (1.841)	- .055 (.262)	- .819* (.322)	+ 1.688* (.518)
(f) M-HHO	+1012.		-2.506* (1.189)	- .510* (.163)	-9.845* (2.275)	+ .538 (.323)	- .454 (.398)	+ 2.812* (.640)
(g) Supply	+1232.	+ 1.215* (.344)	-4.518* (1.634)	- .487* (.223)	-9.174* (3.114)	+ .808 (.403)		
(h) Demand	+1046	+ 6.628 (23.34)	-15.02 (50.06)				+5.118 (19.58)	- 7.895 (37.83)

*Indicates significance at the 95 per cent level.

TABLE 19.--Two-stage least squares regression results for the rate of employment of males in the households industry but not in households occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	URI	F-LFP
49 observations								
(a) PCNR	+155.5		+249.6 (171.2)	+ .247 (3.245)	- .70? (2.42?)	- .136 (.833)	- 4.725 (2.625)	+ .662 (.882)
(b) M-HHI-O	- 1.543		+ 5.591* (.844)	+ .024 (.016)	- .011 (.012)	- .0003 (.0041)	- .007 (.013)	+ .009* (.004)
(c) Supply	- 2.553	+ .003 (.003)	+ 5.083* (1.211)	+ .033* (.016)	- .001 (.012)	+ .0004 (.0043)		
(d) Demand	- 4.815	+ .027 (.065)	- 1.734 (17.63)				+ .124 (.305)	- .007 (.043)
37 observations								
(e) PCNR	+108.1		+235.3 (215.2)	+1.369 (3.710)	+ .235 (3.144)	+ .432 (1.084)	- 1.565 (3.703)	- 1.614 (1.812)
(f) M-HHI-O	- 1.403		+ 4.088* (.822)	+ .030* (.014)	- .006 (.012)	- .002 (.004)	- .013 (.014)	+ .012 (.007)
(g) Supply	- 1.089	- .004 (.005)	+ 5.017* (1.472)	+ .031 (.019)	- .005 (.018)	+ .003 (.005)		
(h) Demand	- 3.566	- .021 (.015)	+ 1.545 (3.534)				+ .018 (.045)	+ .027 (.021)

*Indicates significance at the 95 per cent level.

TABLE 20.--Two-stage least squares regression results for the rate of employment of males in the households industry but not in households occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	URI	F-LFP
49 observations								
(a) PCNR	-201.3		+297.8 (343.6)	+10.22 (6.83)	+7.129 (4.287)	-1.799 (1.820)	- 9.343 (5.365)	- 4.305* (1.915)
(b) M-HHI-O	- 1.912		+ 4.080* (.919)	+ .005 (.018)	+ .002 (.011)	+ .006 (.005)	+ .007 (.014)	+ .002 (.005)
(c) Supply	- 2.003	- .0006 (.0010)	+ 4.231* (.949)	+ .012 (.022)	+ .006 (.011)	+ .005 (.005)		
(d) Demand	- 1.069	- .0008 (.0011)	+ 3.747* (.656)				- .002 (.016)	- .0009 (.0059)
37 observations								
(e) PCNR	+ 64.18		-290.7 (414.6)	+7.972 (7.610)	+8.570 (6.465)	-1.960 (2.829)	+ 7.816 (11.49)	-11.52 (6.28)
(f) M-HHI-O	- 2.032		+ 2.910* (1.036)	+ .013 (.019)	+ .010 (.016)	+ .004 (.007)	+ .009 (.029)	+ .001 (.016)
(g) Supply	- 1.869	- .0005 (.0011)	+ 2.828* (1.092)	+ .020 (.022)	+ .012 (.011)	+ .001 (.008)		
(h) Demand	- 1.099	+ .0001 (.0009)	+ 2.522* (.998)				+ .003 (.023)	+ .006 (.012)

*Indicates significance at the 95 per cent level.

TABLE 21.--Two-stage least squares regression results for the rate of employment of males in the households industry but not in households occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	URI	F-LFP
49 observations								
(a) PCNR	- 122.0		+ .583 (.864)	+ .008 (.124)	+ .224 (1.553)	- .169 (.208)	- .403 (.251)	+ 2.009* (.441)
(b) M-HHI-O	+ 515.6		- 1.187 (1.369)	- .170 (.197)	-5.185* (2.460)	+ .070 (.329)	- 1.381* (.397)	+ 3.024* (.698)
(c) Supply	+ 527.4	+ 1.741* (.478)	- 2.276 (2.017)	- .149 (.293)	-4.545 (3.587)	+ .146 (.426)		
(d) Demand	- 310.8	- 1.960 (2.846)	+ .854 (2.106)				- 1.975 (1.471)	+ 6.696 (5.220)
37 observations								
(e) PCNR	- 147.6		+ 2.086* (.964)	- .007 (.132)	- .290 (1.184)	- .055 (.262)	- .819* (.322)	+ 1.688* (.518)
(f) M-HHI-O	+ 990.2		- 1.815 (1.662)	- .373 (.227)	-9.981* (3.179)	- .426 (.452)	- 1.274 (.556)	+ 3.344* (.894)
(g) Supply	+1273.	+ 1.808* (.546)	- 5.387* (2.591)	- .355 (.354)	-9.334 (4.938)	+ .603 (.639)		
(h) Demand	+1288.	+ 8.442 (31.11)	-17.76 (66.71)				+ 5.750 (26.09)	-10.21 (50.41)

*Indicates significance at the 95 per cent level.

TABLE 22.--Two-stage least squares regression results for the rate of employment of males and females in the laundry, cleaning, and dyeing occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	T-MFG	F-LFP	T-WCOL	HANDE
49 observations									
(a) PCNR	+ 82.47		+120.9* (52.2)	+ .536 (.957)	- .858 (.712)	- .283 (.160)	+1.885* (.365)	- .561* (.266)	-1.202 (1.216)
(b) T-LCDO	+ .866		+ 1.891 (.965)	- .006 (.018)	- .019 (.013)	- .005 (.003)	+ .022* (.007)	- .002 (.005)	+ .031 (.022)
(c) Supply	- .595	+ .013* (.003)	- .013 (.088)	+ .014 (.011)	+ .002 (.009)	- .006* (.001)			
(d) Demand	- 1.036	+ .018* (.005)	+ .054 (1.346)				- .013 (.008)	+ .007 (.004)	+ .051* (.011)
37 observations									
(e) PCNR	+ 42.02		+ 92.75 (49.25)	+ .959 (.869)	- .266 (.735)	+ .098 (.191)	- .112 (.680)	+ .569 (.348)	+ .787 (1.207)
(f) T-LCDO	+ .142		+ 1.013 (.936)	+ .002 (.017)	- .008 (.014)	+ .0005 (.0036)	- .012 (.013)	+ .022* (.007)	+ .060 (.023)
(g) Supply	- 1.701	+ .041* (.015)	- 2.969 (2.198)	- .032 (.034)	+ .005 (.019)	- .007* (.003)			
(h) Demand	- .654	+ .007 (.007)	+ .487 (.858)				- .014* (.006)	+ .018* (.007)	+ .052* (.012)

*Indicates significance at the 95 per cent level.

TABLE 23.--Two-stage least squares regression results for the rate of employment of males and females in the laundry, cleaning, and dyeing occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	T-MFG	F-LFP	T-WCOL	HANDE
49 observations									
(a) PCNR	+ 3.932		+192.8* (52.2)	+2.097 (1.176)	- .497 (.645)	- .161 (.137)	+1.702* (.331)	- .264 (.254)	-1.630* (.764)
(b) T-LCDO	- .685		+ 2.402* (.635)	+ .008 (.014)	- .007 (.008)	- .003 (.002)	+ .019* (.004)	+ .002 (.003)	+ .016 (.009)
(c) Supply	- 1.482	+ .011* (.002)	+ .202 (.392)	+ .009 (.013)	+ .013 (.007)	- .005* (.001)			
(d) Demand	- 1.228	+ .008* (.003)	+ 1.410 (.851)				+ .005 (.004)	+ .004 (.002)	+ .033* (.006)
37 observations									
(e) PCNR	+48.61		+136.0* (42.9)	+ .547 (.934)	- .197 (.578)	+ .237 (.136)	- .637 (.535)	+ .319 (.246)	+ .658 (.688)
(f) T-LCDO	- .423		+ 1.584* (.603)	- .012 (.013)	+ .002 (.008)	+ .002 (.002)	- .011 (.008)	+ .009* (.003)	+ .042* (.010)
(g) Supply	- 2.683	+ .028 (.081)	- 2.247 (2.735)	- .012 (.030)	+ .023 (.013)	- .006* (.003)			
(h) Demand	- .462	+ .0002 (.0051)	+ 1.517 (.770)				- .004 (.005)	+ .009* (.003)	+ .034* (.006)

*Indicates significance at the 95 per cent level.

TABLE 24.--Two-stage least squares regression results for the rate of employment of males and females in the laundry, cleaning, and dyeing occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	T-MFG	F-LFP	T-WCOL	HANDE
49 observations									
(a) PCNR	+ 25.79		+ .503 (.396)	+ .096 (.050)	+ .016 (.738)	- .101 (.117)	+ .260 (.266)	- .173 (.228)	+ .171 (.113)
(b) T-LCDO	- 33.07		+ .326 (.480)	+ .184* (.061)	+ .493 (.894)	- .177 (.142)	+ .297 (.322)	- .366 (.276)	+ .397* (.137)
(c) Supply	- 89.79	+ 1.909* (.660)	- .562 (.626)	- .016 (.098)	+ .335 (.893)	- .045 (.108)			
(d) Demand	- 15.45	+ 1.730* (.557)	- .654 (.577)				- .102 (.272)	- .138 (.236)	+ .081 (.176)
37 observations									
(e) PCNR	- .211		+ .676 (.471)	+ .114 (.061)	+ .008 (.939)	- .129 (.146)	+ .183 (.380)	+ .038 (.396)	+ .144 (.130)
(f) T-LCDO	- 42.32		+ .435 (.580)	+ .199) (.075)	+ .451 (1.157)	- .227 (.180)	+ .292 (.468)	- .267 (.488)	+ .366* (.160)
(g) Supply	-102.7	+ 2.075 (1.036)	- .797 (.963)	- .061 (.150)	+ .548 (1.626)	- .029 (.162)			
(h) Demand	+ 14.99	+ 1.604* (.561)	- .750 (.741)				+ .024 (.380)	- .378 (.552)	+ .117 (.192)

*Indicates significance at the 95 per cent level.

TABLE 25.--Two-stage least squares regression results for the rate of employment of females in the laundry, cleaning, and dyeing occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	F-LFP	T-WCOL	HANDE	RATIO
49 observations										
(a) PCNR	+49.96		+256.8* (79.2)	- .371 (1.511)	-1.031 (1.068)	- .094 (.337)	+2.495* (.693)	- .980 (.512)	-1.246 (1.891)	+ .141 (.094)
(b) F-LCDO	+ 3.227		+ 4.605 (2.710)	- .017 (.052)	- .024 (.037)	- .021 (.012)	+ .004 (.024)	- .034 (.018)	- .128 (.065)	- .003 (.003)
(c) Supply	+ .340	+ .001 (.009)	+ 5.510 (4.174)	+ .013 (.045)	- .008 (.035)	- .027* (.007)				
(d) Demand	+ 2.294	+ .050 (.030)	- 8.536 (9.160)				- .132* (.063)	+ .023 (.026)	+ .237* (.049)	- .007 (.005)
37 observations										
(e) PCNR	- .835		+198.0* (73.0)	+ .113 (1.311)	+ .869 (1.226)	+ .824 (.460)	-1.670 (1.398)	+1.359 (.704)	+2.333 (1.933)	+ .177* (.081)
(f) F-LCDO	- .039		+ 2.642 (2.739)	+ .017 (.050)	+ .017 (.047)	- .001 (.018)	- .100 (.053)	+ .033 (.027)	+ .200* (.074)	- .0007 (.0031)
(g) Supply	+ 2.076	+ .015 (.014)	- 1.658 (3.707)	+ .379* (.036)	- .017 (.031)	- .044* (.008)				
(h) Demand	+ 1.371	- .002 (.029)	+ 2.479 (4.039)				- .007* (.024)	+ .040 (.023)	+ .214* (.041)	- .0002 (.0037)

*Indicates significance at the 95 per cent level.

TABLE 26.--Two-stage least squares regression results for the rate of employment of females in the laundry, cleaning, and dyeing occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	F-LFP	T-WCOL	HANDE	RATIO
49 observations										
(a) PCNR	-171.1		+343.7* (68.89)	+3.613* (1.608)	- .647 (.905)	+ .453 (.267)	+2.064* (.547)	+ .676 (.446)	-2.150* (1.009)	+ .474* (.080)
(b) F-LCDO	- .946		+ 5.963* (1.525)	+ .017 (.036)	- .010 (.020)	- .010 (.006)	+ .009 (.012)	- .008 (.010)	+ .067* (.022)	+ .003 (.002)
(c) Supply	-	+ .006 (.004)	+ 3.820 (2.277)	+ .026 (.037)	+ .005 (.019)	- .018* (.005)				
(d) Demand	- 2.148	- .0002 (.0062)	+ 6.131* (2.409)				- .006 (.013)	+ .001 (.008)	+ .091* (.022)	+ .003 (.003)
37 observations										
(e) PCNR	-127.3		+256.4* (64.5)	+1.524 (1.341)	+ .819 (1.045)	+1.300 (.343)	-2.194 (1.132)	+1.603 (.410)	+1.320 (1.063)	+ .348* (.077)
(f) F-LCDO	- .562		+ 2.993 (1.587)	- .021 (.033)	+ .032 (.026)	+ .005 (.008)	- .085* (.028)	+ .014 (.010)	+ .135* (.026)	- .0004 (.0019)
(g) Supply	- .808	+ .006 (.005)	+ 1.386 (2.313)	+ .036 (.040)	+ .010 (.021)	- .006* (.005)				
(h) Demand	+ .522	- .001 (.006)	+ 3.199 (1.674)				- .059* (.012)	+ .014 (.010)	+ .116* (.017)	+ .003 (.002)

*Indicates significance at the 95 per cent level.

TABLE 27.--Two-stage least squares regression results for the rate of employment of females in the laundry, cleaning, and dyeing occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	F-LFP	T-WCOL	HANDE	RATIO
49 observations										
(a) PCNR	+ 76.22		+ .341 (.391)	+ .005 (.045)	- .571 (.629)	- .049 (.028)	+ .301 (.200)	- .090 (.174)	+ .067 (.094)	+ .221* (.077)
(b) F-LCDO	- 54.58		+ .439 (.364)	+ .115 (.054)	+1.473 (.518)	+ .017 (.036)	- .483 (.256)	- .242 (.225)	+ .485* (.122)	- .333* (.099)
(c) Supply	+ 17.00	- .675 (.456)	+ .774 (.528)	+ .[illegible] (.[illegible])	+ .463 (.379)	- .031 (.043)				
(d) Demand	+103.4	- .077 (.611)	+ .341 (.430)				- .194 (.203)	- .354 (.182)	+ .402* (.133)	- .344* (.160)
37 observations										
(e) PCNR	+ 43.12		+ .[illegible] (.[illegible])	- .[illegible] (.[illegible])	- .656 (.710)	- .[illegible] (.030)	- .0009 (.2841)	+ .378 (.319)	+ .073 (.103)	+ .180* (.080)
(f) F-LCDO	- 68.81		+ .[illegible] (.[illegible])	+ .[illegible] (.[illegible])	+1.[illegible] (1.[illegible])	+ .[illegible] (.[illegible])	- .794 (.469)	+ .159 (.459)	+ .524* (.148)	- .398* (.115)
(g) Supply	+127.0	- .691 (.[illegible])	+ .[illegible] (.[illegible])	+ .[illegible] (.[illegible])	- .[illegible] (1.[illegible])	- .[illegible] (.[illegible])				
(h) Demand	+ 47.76	- .[illegible] (.[illegible])	+ .[illegible] (.[illegible])				- .[illegible] (.[illegible])	+ .376 (.662)	+ .[illegible]* (.175)	- .360* (.178)

*Indicates significance at the [illegible] per cent level.

TABLE 28.--Two-stage least squares regression results for the rate of employment of males in the laundry, cleaning, and dyeing occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	F-LFP	T-WCOL	HANDE	RATIO
49 observations										
(a) PCNR	+16.60		+175.6* (43.0)	- .[illegible] ([illegible])	- .044 (.032)	+ .[illegible] (.250)	+ .004 (.039)	+ .332 (.194)	- .190 (.797)	- .001* (.506)
(b) M-LCDO	- .774		+ 1.7[illegible]7* (.533)	- .[illegible] ([illegible])	- .0004 (.0004)	+ .014 (.003)	- .0005 (.0005)	+ .010* (.002)	+ .010 (.010)	- .0004 (.0007)
(c) Supply	- .302	+ .011* (.002)	- .057 (.412)	+ .[illegible] ([illegible])	- .000[illegible] (.000[illegible])	- .006* (.00[illegible])				
(d) Demand	- .940	+ .010* (.003)	- .[illegible]7 (.[illegible]0)				- .0005 (.0003)	+ .006* (.001)	+ .010* (.005)	+ .0016* (.0007)
37 observations										
(e) PCNR	+33.[illegible]		+ 7[illegible]* ([illegible])	+ .[illegible] (.4[illegible])	+ .001 (.004)	+ .4[illegible]* (.170)	- .[illegible] (.03[illegible])	+ .40[illegible]* (.0[illegible])	+ .376 (.566)	- .14[illegible]* (.041)
(f) M-LCDO	- .047		+ .[illegible] (.3[illegible])	+ .[illegible] ([illegible])	+ .00005 (.00005)	+ .00[illegible]* (.00[illegible])	- .0007 ([illegible])	+ .014* (.003)	+ .016* (.007)	+ .0003 ([illegible])
(g) Supply	- .333	+ .011* ([illegible])	+ .[illegible] (.[illegible])	+ .[illegible] ([illegible])	- .0004 (.0003)	- .00[illegible] (.00[illegible])				
(h) Demand	- 1.109	+ .013* (.004)	- .[illegible] (.463)				- .0003 (.0004)	+ .007 (.003)	+ .011 (.016)	+ .0003 ([illegible])

* Indicates significance at the [illegible] per cent level.

TABLE 29.--Two-stage least squares regression results for the rate of employment of males in the laundry, cleaning, and dyeing occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	F-LFP	T-WCOL	HANDE	RATIO
49 observations										
(a) PCNR	-30.40		+163.8* (31.7)	+1.366 (.727)	- .278 (.412)	+ .410* (.193)	+1.279* (.284)	+ .388 (.164)	- .953* (.439)	- .3*** (.036)
(b) M-LCDO	- 1.086		+ 1.387 (.358)	+ .008 (.008)	- .002 (.005)	+ .003 (.003)	+ .019* (.006)	+ .007* (.002)	- .002 (.005)	- .00005 (.00039)
(c) Supply	- .878	+ .010* (.001)	- .133 (.445)	+ .0008 (.0077)	+ .007 (.005)	- .004 (.002)				
(d) Demand	- .919	+ .007* (.002)	+ .290 (.421)				+ .007* (.003)	+ .005* (.001)	+ .004 (.004)	+ .0006 (.0004)
37 observations										
(e) PCNR	- 2.606		+118.1* (30.7)	+ .354 (.649)	+ .330 (.492)	+ .637* (.193)	- .037 (.401)	+ .335* (.169)	- .363 (.436)	- .15*** (.037)
(f) M-LCDO	- 1.128		+ .995* (.417)	- .003 (.009)	+ .007 (.007)	+ .006* (.003)	+ .002 (.005)	+ .005* (.002)	+ .005 (.006)	- .0005 (.0005)
(g) Supply	- 1.423	+ .008* (.002)	+ .161 (.530)	- .0001 (.0077)	+ .013* (.005)	+ .006 (.003)				
(h) Demand	- .921	+ .007* (.003)	+ .135 (.416)				+ .0[illegible]* (.003)	+ .005* (.002)	+ .003 (.004)	+ .0007 (.0007)

*Indicates significance at the 95 per cent level.

TABLE 30.--Two-stage least squares regression results for the rate of employment of males in the laundry, cleaning, and dyeing occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	F-LFP	T-WCOL	HANDE	RATIO
49 observations										
(a) PCNR	+185.0		+ .146 (.307)	+ .032 (.044)	- .320 (.632)	+ .087 (.077)	+ .156 (.188)	- .301 (.179)	+ .185 (.094)	- .777* (.087)
(b) M-LCDO	+198.9		- .570 (.496	+ .167* (.070)	+ .201 (1.021)	+ .209 (.124)	- .532 (.304)	- .529 (.289)	+ .213 (.152)	- .245 (.140)
(c) Supply	+ 26.59	+ .498* (.170)	- .295 (.475)	+ .069 (.065)	+ .223 (.803)	- .049 (.136)				
(d) Demand	-155.5	+2.541 (1.448)	-1.042 (.902				- .779 (.587)	+ .159 (.385)	- .318 (.344)	+1.713 (1.231)
37 observations										
(e) PCNR	+174.0		+ .533 (.335)	- .010 (.049)	- .780 (.694)	+ .060 (.102)	- .243 (.263)	+ .285 (.306)	+ .219* (.102)	- .814* (.089)
(f) M-LCDO	+223.1		- .526 (.570)	+ .134 (.043)	- .073 (1.180)	+ .323 (.172)	-1.089* (.447)	- .131 (.523)	+ .268 (.174)	- .226 (.151)
(g) Supply	+144.3	+ .426* (.190)	- .739 (.563)	+ .053 (.079)	- .486 (1.142)	- .023 (.161)				
(h) Demand	+ 9.403	+1.856 (1.058)	-1.433 (1.093)				- .334 (.473)	- .396 (.748)	- .225 (.315)	+1.213 (.957)

*Indicates significance at the 95 per cent level.

TABLE 31.--Two-stage least squares regression results for the rate of employment of females in the hairdressing and cosmetology occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	F-WCOL	F-WAIT
49 observations								
(a) PCNR	+53.40		+ 84.08 (64.45)	- .596 (1.192)	+ .513 (.915)	+ .403 (.232)	+ .012 (.487)	+ .656 (7.100)
(b) F-BEA	+ 2.888		+ 1.018 (.895)	- .020 (.017)	- .028* (.013)	- .003 (.003)	- .008 (.007)	+ .288* (.099)
(c) Supply	-14.43	+ .323 (3.092)	- 25.93 (258.8)	+ .172) (1.685)	- .194 (1.722)	- .134 (1.192)		
(d) Demand	+ 1.755	- .014 (.010)	+ 2.778* (1.356)				- .010 (.010)	+ .214 (.122)
37 observations								
(e) PCNR	+ 6.119		+ 76.65 (65.34)	- .159 (1.188)	+1.365 (.988)	+ .585* (.247)	-1.983 (1.049)	+6.593 (7.404)
(f) F-BEA	+ 2.302		+ 1.430 (1.050)	- .016 (.019)	- .022 (.016)	- .004 (.004)	- .003 (.017)	+ .211 (.119)
(g) Supply	+ 1.502	+ .006 (.008)	+ 1.189 (1.116)	+ .002 (.016)	- .019 (.015)	- .012* (.004)		
(h) Demand	+ 1.654	- .010 (.007)	+ 2.530 (1.365)				- .028 (.021)	+ .234* (.100)

* Indicates significance at the 95 per cent level.

TABLE 32.--Two-stage least squares regression results for the rate of employment of females in the hairdressing and cosmetology occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	F-WCOL	F-WAIT
49 observations								
(a) PCNR	+83.95		+29.51 (45.06)	+1.510 (1.030)	+ .061 (.612)	+ .415* (.178)	+ .400 (.425)	-3.354 (3.296)
(b) F-BEA	+ 1.331		+ 2.793 (1.653)	- .031 (.038)	- .009 (.022)	- .011 (.006)	- .025 (.016)	+ .096 (.121)
(c) Supply	+ 5.254	- .044 (.040)	+ 4.254 (3.137)	+ .035 (.034)	- .013 (.034)	+ .010 (.020)		
(d) Demand	+ 2.741	- .025 (.018)	+ 3.880 (1.672)				- .018 (.016)	+ .019 (.184)
37 observations								
(e) PCNR	+55.97		+ 9.480 (52.75)	+1.491 (1.014)	+ .914 (.687)	+ .335 (.184)	-1.153 (.650)	-4.302 (3.365)
(f) F-BEA	+ .062		+ 3.387 (2.199)	- .029 (.042)	- .002 (.029)	- .009 (.008)	- .020 (.027)	+ .092 (.140)
(g) Supply	- .215	+ .005 (.019)	+ 3.069 (2.134)	- .030 (.048)	- .002 (.032)	- .014 (.012)		
(h) Demand	+ 2.093	- .017 (.020)	+ 3.507 (2.527)				- .026 (.032)	+ .073 (.176)

*Indicates significance at the 95 per cent level.

TABLE 33.--Two-stage least squares regression results for the rate of employment of females in the hairdressing and cosmetology occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	F-MOP	F-WCOL	F-WAIT
49 observations								
(a) PCNR	+ 102.2		+ .369 (.257)	- .024 (.033)	- .184 (.427)	+ .020 (.020)	- .391* (.101)	+ .058 (.066)
(b) F-BEA	- 42.26		+1.037 (.663)	+ .017 (.086)	- .136 (1.100)	+ .030 (.052)	+ .366 (.260)	+ .042 (.169)
(c) Supply	+ 98.99	- 1.214) (.907)	+1.460 (.878)	- .014 (.099)	- .400 (1.209)	+ .057 (.056)		
(d) Demand	- 136.4	+ .752 (2.116)	+ .936 (.996)				+ .650 (.670)	- .006 (.213)
37 observations								
(e) PCNR	+ 59.84		+ .559 (.284)	- .009 (.037)	+ .205 (.579)	+ .009 (.021)	- .420* (.135)	+ .037 (.058)
(f) F-BEA	-264.0		+1.099 (.631)	+ .105 (.082)	+2.670* (1.285)	+ .042 (.047)	- .242 (.309)	+ .049 (.150)
(g) Supply	-297.0	+ .5[illegible] (.694)	+ .787 (.742)	+ .110 (.081)	+2.566* (1.214)	+ .03[illegible] (.045)		
(h) Demand	-309.1	+ 3.541 (4.756)	-1.064 (2.544)				+1.5[illegible] (1.977)	- .106 (.334)

*Indicates significance at the 95 per cent level.

TABLE 34.--Two-stage least squares regression results for the rate of employment of males in barbering occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	M-WCOL	M-WAIT
49 observations								
(a) PCNR	-27.22		-22.25 (89.32)	- .305 (1.569)	+1.053 (1.265)	+1.449* (.405)	+4.755* (.596)	-6.947 (7.567)
(b) M-BAR	+ .196		+ .547 (.274)	+ .012* (.005)	- .005 (.004)	+ .0004 (.0012)	+ .014* (.002)	- .002 (.023)
(c) Supply	+ .181	+ .0030* (.0005)	+ .611 (.350)	+ .015* (.006)	- .007 (.005)	- .0043* (.0017)		
(d) Demand	- .117	+ .0005 (.0010)	+ .459 (.306)				+ .012* (.005)	+ .004 (.026)
37 observations								
(e) PCNR	- 81.08		+ 68.52 (113.1)	-1.025 (1.810)	+1.359 (1.760)	+1.721* (.483)	+4.342* (.920)	-7.206 (9.185)
(f) M-BAR	+ .238		+ .298 (.333)	+ .015* (.005)	- .004 (.005)	+ .00002 (.00142)	+ .015 (.003)	- .003 (.027)
(g) Supply	+ .330	+ .0034* (.0008)	+ .079 (.419)	+ .020* (.006)	.007 (.006)	- .0059* (.0024)		
(h) Demand	+ .017	+ .0002 (.0010)	+ .155 (.370)				+ .014* (.006)	- .022 (.029)

*Indicates significance at the 95 per cent level.

TABLE 35.--Two-stage least squares regression results for the rate of employment of males in barbering occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	M-WCOL	M-WAIT
49 observations								
(a) PCNR	+75.10		- 6.985 (113.3)	+2.069 (2.442)	-1.266 (1.489)	+2.073* (.609)	+5.699* (.790)	+ 7.496 (7.513)
(b) M-BAR	+ .288		+ .615* (.292)	- .003 (.006)	- .003 (.004)	+ .0003 (.0016)	+ .002 (.002)	+ .011 (.019)
(c) Supply	+ .217	+ .0004 (.0003)	+ .633* (.284)	- .003 (.006)	- .002 (.003)	- .0006 (.0016)		
(d) Demand	+ .030	+ .0002 (.0005)	+ .736* (.206)				+ .0002 (.0030)	+ .005 (.017)
37 observations								
(e) PCNR	+83.85		- 44.32 (153.3)	+2.532 (2.883)	-1.412 (2.061)	-1.995* (.786)	+6.335* (1.125)	+10.83 (9.38)
(f) M-BAR	+ .336		+ .518 (.387)	- .002 (.007)	- .002 (.005)	- .0004 (.0020)	+ .001 (.003)	+ .010 (.024)
(g) Supply	+ .273	+ .0002 (.0004)	+ .528 (.374)	- .002 (.007)	- .002 (.004)	- .0009 (.0023)		
(h) Demand	+ .102	+ .00004 (.00060)	+ .616 (.319)				+ .0006 (.0039)	+ .005 (.026)

*Indicates significance at the 95 per cent level.

TABLE 36.--Two-stage least squares regression results for the rate of employment of males in barbering occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	M-WCOL	M-WAIT
49 observations								
(a) PCNR	+216.8		+ .621 (.358)	- .231* (.046)	-2.075* (.602)	- .092 (.074)	+ .563* (.174)	- .064 (.068)
(b) M-BAR	+ 42.92		- .312 (.438)	+ .127* (.056)	- .640 (.738)	- .136 (.090)	+ .967* (.213)	+ .165 (.083)
(c) Supply	-121.6	+1.207* (.453)	- .934 (.570)	+ .410* (.128)	+1.241 (1.383	+ .282* (.113)		
(d) Demand	-119.7	- .590* (.286)	+ .800 (.494)				+1.594* (.271)	+ .222* (.101)
37 observations								
(e) PCNR	+142.7		+ .683 (.393)	- .198* (.055)	-1.296 (.815)	- .180 (.098)	+ .520* (.217)	- .062 (.086)
(f) M-BAR	+ 44.47		- .355 (.452)	+ .085 (.064)	- .655 (.939)	+ .268* (.113)	+ .850* (.250)	+ .253* (.099)
(g) Supply	+ 11.26	+1.057 (.555)	-1.100 (.659)	+ .321* (.130)	+ .119 (1.208)	- .459* (.156)		
(h) Demand	- 38.53	- .807* (.311)	+ .518 (.574)				+1.259* (.347)	+ .247 (.133)

*Indicates significance at the 95 per cent level.

TABLE 37.--Two-stage least squares regression results for the rate of employment of males in shoe repair occupations: 1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	T-WCOL	HANDE
49 observations								
(a) PCNR	+73.96		-217.5 (194.9)	-3.236 (3.466)	+2.250 (2.527)	+1.759 (.988)	+ .777 (.819)	+5.597 (3.741)
(b) M-SO	+ .302		- .090 (.144)	+ .0009 (.0027)	- .003 (.002)	+ .0007 (.0007)	+ .0034* (.0006)	- .009* (.003)
(c) Supply	+ .411	+ .0005 (.0005)	- .084 (.243)	+ .002 (.003)	- .005 (.003)	+ .0008 (.0010)		
(d) Demand	+ .133	- .0002 (.0004)	- .140 (.184)				+ .0038* (.0007)	- .009* (.003)
37 observations								
(e) PCNR	-63.84		+159.5 (186.0)	-3.708 (3.176)	+3.387 (2.507)	+2.274* (.875)	-2.359* (1.117)	-5.210 (3.494)
(f) M-SO	+ .386		- .117 (.185)	+ .0007 (.0032)	- .004 (.002)	+ .0007 (.0009)	+ .0037* (.0011)	- .008* (.003)
(g) Supply	+ .270	- .002 (.001)	+ .133 (.374)	- .005 (.006)	+ .001 (.006)	+ .004* (.002)		
(h) Demand	+ .130	- .0002 (.0004)	- .121 (.186)				+ .0036* (.0014)	- .010* (.003)

*Indicates significance at the 95 per cent level.

TABLE 38.--Two-stage least squares regression results for the rate of employment of males in shoe repair occupations: 1960.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	T-WOOL	HANDE
49 observations								
(a) PCNR	+436.8		-416.7* (198.4)	+1.352 (4.403)	+ .340 (2.471)	-1.258 (1.180)	- .176 (.957)	-7.103* (2.479)
(b) M-SO	+ .117		+ .074 (.133)	- .003 (.003)	- .001 (.002)	- .0002 (.0005)	+ .0018* (.0007)	- .003 (.002)
(c) Supply	- .111	+ .0005 (.0003)	+ .245 (.239)	- .002 (.004)	- .0003 (.0023)	- .00009 (.00100)		
(d) Demand	- .033	- .00003 (.00059)	+ .146 (.249)				+ .0017* (.0006)	- .004 (.004)
37 observations								
(e) PCNR	+224.4		-237.2 (255.7)	+ .617 (4.997)	+2.580 (3.122)	- .723 (1.357)	-1.218 (1.326)	-7.809* (2.756)
(f) M-SO	+ .201		- .014 (.148)	- .003 (.003)	- .003 (.002)	+ .00004 (.00078)	+ .0013 (.0008)	- .0033 (.0016)
(g) Supply	+ .083	+ .0003 (.0003)	+ .119 (.195)	- .003 (.004)	- .002 (.002)	+ .0005 (.0009)		
(h) Demand	+ .144	- .0003 (.0004)	- .026 (.174)				+ .0008 (.0008)	- .006 (.003)

*Indicates significance at the 95 per cent level.

TABLE 39.--Two-stage least squares regression results for the rate of employment of males in shoe repair occupations: 1960/1950.

Item	Constant	PCNR	GINI	M-UE	M-LFP	M-OPS	T-WCOL	HANDE
49 observations								
(a) PCNR	+403.4		- .686 (.484)	- .057 (.061)	-2.466* (.873)	+ .278* (.098)	+ .486 (.266)	- .673* (.132)
(b) M-SO	+224.3		+ .312 (.488)	+ .059 (.062)	-1.791 (.881)	+ .051 (.099)	- .360 (.268)	- .006 (.134)
(c) Supply	+103.2	+ .002 (.201)	+ .569 (.486)	+ .048 (.062)	-1.176 (.868)	+ .099 (.107)		
(d) Demand	-114.8	+ .658* (.312)	+1.172* (.475)				- .434 (.409)	+ .414 (.250)
37 observations								
(e) PCNR	+390.7		- .666 (.520)	- .024 (.075)	-1.926 (1.036)	+ .312* (.128)	+ .025 (.416)	- .686* (.139)
(f) M-SO	+312.0		- .245 (.520)	+ .074 (.078)	-1.848 (1.035)	+ .216 (.128)	- .687 (.416)	+ .006 (.139)
(g) Supply	+185.2	+ .116 (.195)	+ .020 (.530)	+ .022 (.073)	-1.586 (1.051)	+ .135 (.137)		
(h) Demand	-122.8	+1.031* (.455)	+ .622 (.623)				- .451 (.523)	+ .690 (.358)

*Indicates significance at the 95 per cent level.

CHAPTER VII

SUMMARY

The data assembled in the previous chapter seems to indicate that for most occupations in the private households industry, the supply of labor is positively related to the GINI index. The findings also suggest that the wage rate is of little relevance in the supply of domestic labor, but that the opportunity cost of employing a family member in the home to do the chores that might be performed by hiring someone else may be a relevant factor in the demand for live-out domestics. For the laundering, cleaning, and dyeing occupations, there is also some evidence that income distribution is an important factor in determining the rate of employment in these occupations. The lodgings and restaurant industries apparently are an important element in the demand relationship. The regressions for F-BEA are largely insignificant while those for M-BAR indicate that M-WCOL is an important factor in the demand for barbers, while M-UE is an important consideration in the supply relationship. For M-SO, there is some evidence that both T-WCOL and HANDE are factors in demand. But the evidence for HANDE is somewhat contradictory.

It seems appropriate at this juncture to summarize the results of preliminary research which dealt with the

relationship between the rates of employment in routine personal services and the condition of the labor market as indicated by unemployment, labor force participation and migration rates. In these regressions it was found that, with respect to M-SO, M-BAR, and LCDO (male or female), there was a high positive association with unfavorable labor market conditions. Many of the occupations in the households industry were also associated with poor underlying labor market conditions. There was no clear cut interpretation of the results for F-BEA, F-HHOin and a subgroup of F-HHOout known as babysitters.

Perhaps better results might have been achieved by respecifying the model. In particular, it might be appropriate to include PCIO and RATIO as endogenous variables in an expanded system of equations. GINI might also be treated as an endogenous variable inasmuch as it can be expected to be interdependent with some of the wage variables. In view of the seemingly peculiar results for PCNR in some of the equations, it might be appropriate to make PCNR an exogenous variable with the particular RPS rate an endogenous variable along with GINI. This model might be of the form:

$$\text{GINI} = x_1 + x_2\ \text{RPS} + x_3\ \text{M-UE} + x_4\ \text{M-LFP} + x_5\ \text{ALT} \qquad (10)$$

$$\text{RPS} = y_1 + y_3\ \text{GINI} + y_4\ \text{CHAR} \qquad (11)$$

where 10 is the form of the supply function and 11 is the form of the demand function.

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