

WEALTH HOLDING IN WENTWORTH COUNTY, ONTARIO,
1872 - 1892

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1872 - 1892

By

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ABSTRACT

This study presents an examination of wealth holding in late nineteenth century Wentworth County using a set of historical micro-data constructed from the probate records of the Wentworth County Surrogate Court, the Census of Canada and municipal tax assessment rolls. The final sample consists of 283 probated decedents -- 50 from 1872, 79 from 1882 and 154 from 1892. The information contained in the data set was augmented by historical information drawn from the inspection of local newspapers and period documents.

The data set was used to derive information on the size, composition and distribution of wealth for the sample population, a subsection of late nineteenth century Canadian society. Econometric techniques were used to examine whether these probated decedents were characterized by life-cycle or bequest saving behaviour. The study then is both an examination of past wealth holding and an attempt to analyze the motives for saving and wealth holding.

Ordinary Least Squares and Tobit were employed in a regression analysis of the determinants of total wealth. Separate equations were estimated for real estate and financial assets. It was found that a decedent's real wealth was positively and significantly related to age, occupational status, and the number of surviving children. Real estate holdings were positively and significantly related to the number of children, but there was no significant relationship between financial asset holding and the number of children.

The presence of a hump-shaped wealth-age profile as well as a relationship between wealth holding and children suggest that both life-cycle and bequest motives for saving were present in late nineteenth century Wentworth County. At the same time, the low rate of decumulation after peak wealth, and the breakdown of the wealth-age profile for the separate real estate and financial asset equations both suggest that the bequest motive was more important.

It is difficult then, to reconcile the evidence on life-cycle and bequest-saving in Wentworth County with the Life-Cycle Transition hypothesis advanced by Ransom and Sutch. Clearly, the presence of both life-cycle and bequest saving attributes, both in this thesis and in other studies of late twentieth-century saving, provides conflicting evidence that a unique transition was taking place in the late nineteenth century.

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

1.1 Introduction and Review

The aim of the following study is to present some historical micro-data on wealth holding in Wentworth County during the late nineteenth century which would provide information on the size, composition and distribution of wealth for a subsection of Canadian society. Moreover, the data set generated is used to address hypotheses concerning the economic motives for saving and wealth holding.

A major concern in the economics of saving and wealth is the motivation for saving and wealth accumulation and whether the main source of existing wealth is due to bequest or life-cycle saving.¹ For the purposes of this thesis life-cycle saving is defined as the accumulation of assets during working years in order to finance consumption during retirement. Bequest saving, on the other hand, is defined as the accumulation of assets during working years in order to provide offspring with an inheritance.

The approaches used in determining whether saving is characterized by bequest or life-cycle behaviour have consisted of empirical and simulation studies. Empirical studies have utilized time series and household micro-data. Empirical studies using aggregate time series data have shown that current consumption is too sensitive to current income to warrant acceptance of the

¹For an excellent survey of the issues see Franco Modigliani, "The Role of Intergenerational Transfers and Life Cycle Saving in the Accumulation of Wealth," *Journal of Economic Perspectives*, Vol. 2, (1988), pp. 15-40; Dennis Kessler and André Masson, "Bequests and Wealth Accumulation: Are Some Pieces of the Puzzle Missing?" *Journal of Economic Perspectives*, Vol. 3, (1989), pp. 141-52; Laurence J. Kotlikoff, "Intergenerational Transfers and Savings," *Journal of Economic Perspectives*, Vol. 2, (1988), pp. 41-58.

life-cycle model without some modification.² Micro-data results have been inconclusive, showing low rates of decumulation after peak wealth which can be partly explained by individual uncertainty as to the date of death.³ Nor can the results of simulation experiments which estimate consumption and earnings paths, given a model and parameters, be taken as conclusive because the outcomes are to a large extent determined by the choice of parameters for the model.⁴

The variety of results that are obtained in the study of saving, often with the same data, seems to be the result of the failure to view the problem in the same manner. As Kessler and Masson write:⁵

The fundamental source of the Kotlikoff-Modigliani dispute seems to rest in the fact that these authors do not share the same representation of accumulation behaviour, the same view of the forces driving bequest (sic), or the same conception of the family.

Moreover, since there is no single way to separate inherited from accumulated wealth or to define consumption, results can become sensitive to the definitions employed. An example is the difference regarding what constitutes a bequest. Kotlikoff and Summers include expenditures on education for children over 18 as a bequest whereas Modigliani argues that no customary expenditures on a dependent should be treated as a bequest.⁶

Another characteristic of the debate over saving behaviour has been the

²Mervyn King, "The Economics of Saving: A Survey of Recent Contributions," in *Frontiers in Economics*, eds. Kenneth J. Arrow and Seppo Honkapohja (Oxford, Basil Blackwell, 1985), p.276.

³King, 1985, p. 279. and Jim Davies, "Uncertain Lifetimes, Consumption and Dissaving in Retirement," *Journal of Political Economy*, Vol. 89, (1981), pp. 561-77.

⁴Modigliani, 1988, p. 25.

⁵Kessler and Masson, 1989, p. 142.

⁶Modigliani, 1988, p.31.

tendency to view life-cycle saving as an all-or-nothing model when the evidence suggests that there is a minority of households for whom the life-cycle model appears to be inadequate.⁷ Studies have searched for evidence of either life cycle or bequest saving but have never acknowledged that the two motives may exist jointly. Such a situation leads to the problem of how one would distinguish life-cycle from bequest saving.

The presence of terminal wealth itself does not constitute evidence for or against the existence of a particular saving motive. To examine the motives for wealth holding one needs to examine those variables that are affected by life-cycle or bequest saving and then examine the relationship between these observable variables and terminal wealth.⁸ For example, life-cycle saving behaviour implies a hump-shaped wealth-age profile. Bequest saving, on the other hand, can rationalize an upward sloping wealth-age profile.

The debate over the relevance of the life-cycle model has also spread into economic history. Roger Ransom and Richard Sutch⁹ have argued that during the nineteenth century in the United States there was a movement from target-bequest saving to life-cycle saving as the implicit old age security contracts between parents and children -- the promise of a bequest of land in return for old-age support -- eroded. They have termed this shift in saving behaviour 'The Life-Cycle Transition.'

Financial assets were substituted for children and land in planning for one's old age as the rise of off-farm market opportunities increased the

⁷King, 1985, p. 228.

⁸Michael D. Hurd, "Savings of the Elderly and Desired Bequests," *American Economic Review*, Vol. 77, (1987), p. 300.

⁹Roger L. Ransom and Richard Sutch, "The Life-Cycle Transition: A Preliminary Report on Wealth-holding in America," University of California Project on the History of Saving. A Background Paper Prepared for the Tenth University of California Conference on Economic History, Laguna Beach, California, May 2-4, (1986a).

incidence of default on the implicit obligations. The result was that nineteenth century America witnessed a fertility decline and a rise in aggregate saving¹⁰ which financed its industrialization.¹¹

William Sundstrom and Paul David have studied the impact of alternative labour market opportunities on fertility in antebellum America. According to their results, the rise in alternative opportunities reduced the reliability of children as assets for old-age support and resulted in a substitution of financial assets for children.¹²

Another body of American wealth literature has concerned itself with studying micro-data on wealth to determine the size, composition and distribution of wealth. Lee Soltow has used census data to prepare studies on wealth holding in Wisconsin¹³ and the United States as a whole¹⁴ in the nineteenth century focusing on the pattern of wealth distribution and its stability over time. Alice Hanson Jones used probate records to construct wealth estimates for the Thirteen Colonies on the eve of the American Revolution.¹⁵ More recently, William Newell has used probate data to examine wealth and inheritance patterns in Butler County, Ohio from 1803 to 1865.¹⁶

¹⁰Ransom and Sutch, 1986a.

¹¹See also Paul Johnson, "Savings Behaviour, Fertility and Economic Development in Nineteenth-Century Britain and America," Centre for Economic Policy Research, Discussion Paper No. 203, (1987).

¹²William A. Sundstrom and Paul A. David, "Old-Age Security Motives, Labour Markets, and Farm Family Fertility in Antebellum America," *Explorations in Economic History*, Vol. 25, (1988), pp. 164-197.

¹³Lee Soltow, *Patterns of Wealthholding in Wisconsin Since 1850* (Madison, University of Wisconsin Press, 1971).

¹⁴Lee Soltow, *Men and Wealth in the United States 1850-1870* (New Haven, Yale University Press, 1975).

¹⁵Alice Hanson Jones, *Wealth of a Nation to Be: The American Colonies on the Eve of the Revolution* (New York, Columbia Press, 1980).

¹⁶William H. Newell, "Inheritance on the Maturing Frontier: Butler County Ohio, 1803-1865," *Long-Term Factors in American Economic Growth*, eds. S.L. Engerman and R.E. Gallman, NBER Studies in Income and Wealth, Vol. 51, (University of Chicago Press, 1986) and "The Wealth of Testators and its Distribution: Butler

The concerns of the above scholarship have been mainly to examine the size, composition and distribution of wealth. Soltow, for example, finds that inequality in the United States between 1850 and 1870 was surprisingly great and stable over the period but was tolerated because "for the average person handsome rates of accumulation of wealth during his lifetime were within the realm of possibility."¹⁷

Newell finds that in Butler County between 1803 and 1865, average wealth per testator quadrupled. Moreover, most of the period of rapid growth in mean wealth (1830-1865) was characterized by high and increasing inequality in the distribution of total wealth.¹⁸ Also, Newell finds that during this period, children came to be treated more equally with regards to wealth bequeathed. Whereas between 1803-1819, 40% of wills exhibited some degree of equal treatment of all children with respect to wealth bequeathed, by 1860-65, this figure had risen to just over 60%.¹⁹ Moreover, this increase in equality was accompanied by a decrease in the proportion of wills that favoured sons over daughters.²⁰

The question underlying much of this work is how much mobility, in terms of economic betterment, existed in nineteenth century America. Was the quest for wealth and material improvement open to all, regardless of background, or was social position at birth a major determinant of economic success in life? The traditional view has been that material improvement occurred regardless of

County Ohio, 1803-65," **Modelling the Distribution and Intergenerational Transmission of Wealth**, ed. J.D. Smith, NBER Studies in Income and Wealth, Vol. 46, (University of Chicago Press, 1980).

¹⁷Soltow, 1975, p. 183.

¹⁸Newell, 1980, p.99.

¹⁹Newell, 1986, p. 267.

²⁰Newell, 1986, p. 268.

one's social position²¹ but this view has been challenged by evidence suggesting that social and economic position at birth conferred obvious advantages in the quest for economic success in life.²²

In addition, many of these studies could be interpreted as a natural reaction to the pioneering work in aggregate wealth estimates done for the U.S. economy by economists such as Raymond W. Goldsmith²³ and Simon Kuznets.²⁴ In this light, this concern with the wealth of individuals can be interpreted as an attempt to provide 'micro-underpinnings' for the aggregate work done using social and national income accounting concepts.²⁵

Several other micro-data studies which have examined the importance of bequests as a motive for saving²⁶ and the implications of bequests and the method of estate division for income and wealth distribution,²⁷ deserve some mention. These studies have not used nineteenth century data, but instead have relied on comparatively modern data; nevertheless, they can be considered to be in the spirit of historical micro-analysis. They examine problems that can also be

²¹Gordon W. Kirk, Jr. *The Promise of American Life: Social Mobility in a Nineteenth Century Immigrant Community, Holland, Michigan 1847-1894* (American Philosophical Society, 1978), p. 1.

²²See Stephan Thernstrom, *The Other Bostonians: Poverty and Progress in the American Metropolis 1880-1970* (Cambridge, Harvard University Press, 1973), pp. 99-103.

²³Raymond W. Goldsmith et al., *A Study of Saving in the United States, Vol. III, Special Studies* (New York, Greenwood Press, 1956).

²⁴Simon Kuznets, *Capital in the American Economy* (NBER, Princeton University Press, 1961).

²⁵The social accounting approach to measuring saving excludes valuation changes such as realized and unrealized capital gains and losses and calculates all depreciation on the basis of replacement cost of tangible assets and includes accrued taxes. Business accounting, on the other hand, includes valuation changes and utilizes original cost to calculate depreciation but is otherwise the same. See Goldsmith, 1956, p. 90.

²⁶Hurd, 1987.

²⁷Paul L. Menchik and Martin David, "Income Distribution, Lifetime Savings, and Bequests," *American Economic Review*, Vol. 73, (1983), pp. 672-90 and Paul L. Menchik, "Primogeniture, Equal Sharing and the U.S. Distribution of Wealth," *Quarterly Journal of Economics*, Vol. 94, (1980), pp. 299-316.

addressed with appropriate nineteenth century data.

Hurd proposes a test for the bequest motive by hypothesizing that someone with a bequest motive will hold more wealth than someone without this motive. The test, using Longitudinal Retirement Survey Data on 11,000 U.S. households whose heads were born between 1906 and 1911, is whether the saving of the elderly who have living children differs from the saving of the elderly who do not have children. Hurd finds that there is no difference and concludes that there is no evidence for a bequest motive.²⁸

Menchik and David, on the other hand, using income tax returns from Wisconsin 1946-1964, fail to show individuals decumulating wealth in old age, hence suggesting the presence of a bequest motive.²⁹ Also, Menchik presents evidence from 1930-1946 drawn from the probate records of the Inheritance Tax Division of the Connecticut State Tax Department that indicates that wealth bequeathed to children is divided equally between children of opposite sex.³⁰ Menchik obtains this result by studying those cases where the families report both male and female children. He examines separately 82 families with two children, 87 families with three children and then the entire sample of 246 families.³¹

There have been several Canadian studies which have used historical micro-data. Among them have been David Gagan's comprehensive social and economic study of Peel County,³² Marvin McInnis's work with the Canada West Farm

²⁸Hurd, 1987, p. 306.

²⁹Menchik and David, 1983, p. 688.

³⁰Menchik, 1980, p. 314.

³¹Menchik, 1980, p. 306.

³²David Gagan, *Hopeful Travellers: Families, Land and Social Change in Mid-Victorian Peel County, Canada West* (Toronto, University of Toronto Press, 1981).

Sample of 1861,³³ Frank Denton and Peter George's study of the influences on family size in Wentworth County in 1871,³⁴ and William Marr's recent work on fertility in Canada West using the 1851 Census.³⁵ None of these studies has dealt specifically with wealth holding, although both Gagan and McInnis have examined land holding and Gagan has done a micro-analysis of the inheritance system of nineteenth century Ontario as part of his work on Peel County.³⁶

Michael Katz uses census and assessment rolls, city directories and other assorted records to describe the patterns of life in mid-nineteenth century Hamilton. His work describes family and social structure as well as relationships among wealth, occupation, ethnicity, and property ownership. Katz found that mid-nineteenth century Hamilton was characterized by a sharp inequality in wealth, one in which the poorest 40% earned about 1% of total income and owned 6% of total wealth.³⁷

Gordon A. Darroch uses the municipal assessment rolls to gauge the extent of wealth inequality in nineteenth century Toronto. Darroch found that inequality amongst assessed families was such that the top one-fifth of assessed

³³Marvin McInnis, "Childbearing and Land Availability: Some Evidence from Individual Household Data," *Population Patterns in the Past*, ed. R.D. Lee et al., (New York, Academic Press, 1977), pp. 201-227.

³⁴Frank T. Denton and Peter George, "The Influence of Socio-Economic Variables on Family Size in Wentworth County, Ontario, 1871: A Statistical Analysis of Historical Micro-Data," *Rev. Can. de Soc. et Anth.*, Vol. 10, (1973), pp. 334-345.

³⁵William L. Marr, "Fertility Rates Among Married Couples in Rural Canada West, 1851: Some First Estimates," *Research Report No. 8695, School of Business and Economics, Wilfrid Laurier University*, (1986) and "The Household and Agricultural Structure of Rural Canada West in 1851: Old Areas and Frontier Settlement," *Research Report No. 87108, School of Business and Economics, Wilfrid Laurier University*, (1987).

³⁶David Gagan, "The Indivisibility of Land: A Microanalysis of the System of Inheritance in Nineteenth Century Ontario," *Journal of Economic History*, Vol. XXXVI, (1976), pp. 126-46.

³⁷Michael B. Katz, *The People of Hamilton, Canada West: Family and Class in a Mid-19th Century City* (Cambridge, Harvard University Press, 1975), p. 25.

families held at least 65% of all assessed wealth and the poorest 40% never more than 8%.³⁸ However, wealth inequality declined between 1871 and 1899.³⁹

There has been work done on wealth holding in French Canada utilizing "les inventaires après décès" (i.e., inventories taken after death) by Gilles Paquet and Jean-Pierre Wallot.⁴⁰ The work done by Paquet and Wallot provides a breakdown of wealth into various categories such as money, promissory notes, movable goods and furniture for some late eighteenth and early nineteenth century wealth holders in Quebec. Their results show that between 1792-96 and 1807-12 average net personal wealth, "la richesse mobilière moyenne nette," rose more than 350% amongst wealthholders in and around Montreal while prices went up 40-60%.⁴¹

Moreover, Paquet and Wallot challenge the stereotype of the habitant as a conservative peasant oblivious to market signals and conditions. They suggest that the habitant was indeed a rational economic agent who chose land as a form of wealth because information and transactions costs hindered the accumulation of financial assets. The goal of the habitant was to maximize terminal wealth that could be transferred on to his children and they conclude there was a positive relationship between average real estate held, which increased between 1792 and 1835, and the number of children.⁴²

There has been recent work put together on wealth holding and wealth

³⁸Gordon A. Darroch, "Early Industrialization and Inequality in Toronto, 1861-1899," *Labour/Le Travailleur*, Vol. 11, (1983), p. 59.

³⁹Darroch, 1983, p. 49.

⁴⁰Gilles Paquet et Jean-Pierre Wallot, "Les Inventaires après décès à Montréal au tournant du XIXe siècle: préliminaires à une analyse," *Revue d'histoire de l'Amérique française*, Vol. 30, (1976), pp. 163-221 and "Stratégie Foncière de l'habitant: Québec (1790-1835)," *Revue d'histoire de l'Amérique française*, Vol. 39, (1986), pp. 551-81.

⁴¹Paquet and Wallot, 1976, p. 184.

⁴²Paquet and Wallot, 1986.

inequality in Nova Scotia by F.K. Siddiq and by Siddiq and Lars Osberg.⁴³ Siddiq examines 346 individuals from 1871 and 466 from 1899 whose estates were probated in 13 Nova Scotia counties. During the period under consideration, Siddiq found a slight shift towards greater inequality in wealth. Moreover, higher levels of wealth were found to be associated with being a merchant and with living in Halifax as opposed to the rest of the province.⁴⁴ Siddiq and Osberg also argue that the prosperity of the 1850-1875 period in Nova Scotia benefited primarily the Halifax-based merchant class.⁴⁵

These Canadian studies, unlike the American, are marked by no single unifying theme aside from the desire to document the economic structure of the past. The work in French Canada assails the traditional view of the habitant as a conservative, custom-bound economic entity while that in English Canada has examined the economic structure of Victorian society in Canada and the response of individuals to economic change. This study of Wentworth County will contribute further evidence on nineteenth century wealth distribution as well as an examination of the motives for wealth holding.

1.2 Summary and Plan of Study

The following study of Wentworth County will attempt to describe the extent and nature of wealth holding amongst a certain select group of individuals -- a

⁴³F.K. Siddiq, "Problems of Measuring Wealth Inequality over Time," Paper Presented at 15th Conference on the Use of Quantitative Methods in Canadian Economic History, (1987a); "The Role of Occupation, Real Estate Holdings and Urbanization on the Inequality of Wealth," Dalhousie University, School of Public Administration, (1987b); "The Size Distribution of Probate Wealth Holdings in Nova Scotia in the Late 19th Century," *Acadiensis*, Vol. XVIII, (1988), pp. 136-47 and Lars Osberg and F.K. Siddiq, "The Inequality of Wealth in Britain's North American Colonies: The Importance of the Relatively Poor," *Review of Income and Wealth*, Series 34, (1988), pp. 143-163 and "The Acquisition of Wealth in Nova Scotia in the 1870s," Paper Presented to the Annual Meetings of the Canadian Economics Association at Laval University, Quebec City, June 2-4, 1989.

⁴⁴Siddiq, 1987b, p.31.

⁴⁵Osberg and Siddiq, 1989, p. 20.

set of probated decedents who died in the late nineteenth century -- as well as to address some of the aforementioned issues in the economics of saving. How much wealth did the average wealth holder in Wentworth County possess? What was the composition of the wealth holdings? What was the distribution of wealth amongst the wealth holders? Was Wentworth County during the period under consideration characterized by a transition from target-bequest to life-cycle saving?

(i) A Preview of the Results

The data for this study come from a set of micro-data consisting of 283 probated decedents from the years 1872, 1882 and 1892. The data set was constructed from three primary sources: the probate records of the Wentworth County Surrogate Court, the Census of Canada, and the various tax assessment rolls for the municipalities and townships that constituted Wentworth County in the late nineteenth century.

The probated decedents of Wentworth County differed from the general population of the County in that they were older, of higher socio-economic status, more Protestant and more likely to have been foreign-born. They were also overwhelmingly male although the proportion of females rose between 1872 and 1892.

Per capita wealth in Wentworth County rose between 1872 and 1892 but there was a decline between 1872 and 1882 which coincides with a period of economic depression in Canada's economic history. The decline in per capita wealth was borne by urban as opposed to rural probated decedents, non-farmers as opposed to farmers, males relative to females, Protestants rather than Catholics, and the foreign-born rather than the native-born. Those groups which avoided the decline in per capita wealth generally held a greater proportion of their wealth in real estate relative to their comparison group.

There was an increase in the incidence of real estate ownership between 1872 and 1892. As well, on average, the share of wealth held as real estate rose. Wealth ownership amongst the probated decedents of Wentworth County was positively related to high occupational status, age and the number of surviving children. In addition, the value of real estate holdings and the number of children were found to be positively related as was the quantity of land a farmer had and the number of children. No significant relationship emerged between the holding of financial assets and the number of children.

From these results, no definite conclusion can be made regarding the predominance of either life-cycle or bequest motives for saving. The existence of both a hump-shaped wealth-age profile and a positive relationship between wealth and the number and presence of children would suggest that both saving motives were present in late nineteenth century Wentworth County.

However, the fact that there was a low rate of decumulation after peak wealth and a break down of the wealth-age profile for separate real estate and financial asset equations suggests that the probated decedents were characterized more by bequest saving than pure life-cycle saving. The relationship between wealth and children tended to be more persistent when the data were broken up into sub-groups.

The lack of convincing evidence for the predominance of either a bequest or life-cycle saving motive makes it impossible to state categorically that the Life-Cycle Transition occurred in late nineteenth century Wentworth County. Yet, there is some evidence to support elements of the Life-Cycle Transition hypothesis as part of the savings/wealth accumulation process. If one accepts that bequest saving logically predates life-cycle saving and since both motives appear to be present in the Wentworth County data, then it is tempting to conclude that Wentworth County was rather in the midst of a Life-Cycle Transition, a transition which the results from other studies using modern data

suggest is still underway in the late twentieth century.

As for wealth distribution, use of the estate-multiplier technique revealed that it was quite unequal, with the top 20% of wealth holders in Wentworth County owning at the very least 82.5% of total wealth between 1872 and 1892 while the share of the bottom 40% was at most 2.8%. However, judging from other studies, wealth in Wentworth County was apparently no more unequally distributed than in other locales in North America during the same period.

At the same time, there is generated from the data in this study evidence suggesting material improvement over time. The percentage of probated decedents reporting real estate rose over the period as did the proportion of female probated decedents in the sample. These two trends alone suggest diffusion of real property ownership over time and increased participation in the market economy by women. Moreover, the estate-multiplier estimates suggest that there was a transfer of wealth from the top 10% of the wealth distribution to the second and middle deciles between 1872 and 1892 foreshadowing the rise of a wealth holding middle class in the twentieth century.

(ii) Plan of Thesis

The plan of the study is as follows. Chapter 1 is an introduction to the thesis and a review of pertinent literature. Since the data are an important component of this work, all of Chapter 2 will be devoted to explaining the methodology employed in collecting the data set.

In Chapter 3, aggregate statistics derived from the data will be presented along with some biographical information on the individuals in the data set. This chapter will present statistics on average terminal wealth held by the probated decedents as well as characteristics of the decedents such as age and occupation. The chapter will also break up the average wealth estimates so that comparisons can be made between foreign and native-born individuals and urban

and rural place of residence.

In Chapter 4, econometric techniques will be applied to the data in order to discern the determinants of terminal wealth. The results obtained will be examined to see if any evidence can be found supporting either the life-cycle or the target-bequest hypothesis of saving behaviour.

Chapter 5 will examine inequality in Wentworth County during the late nineteenth century as displayed by the data set. Along with wealth distributions for the set of probated decedents, this chapter will employ the estate-multiplier technique to calculate per capita wealth estimates and wealth distributions for the County. Finally, Chapter 6 concludes the thesis.

The contribution of this study to the economics of saving will be to provide a set of micro-data which can be used to test for historical evidence of either life-cycle or bequest saving. Specifically, this data set will provide important information regarding wealth accumulation in late nineteenth century Canada and allow for tests of the life-cycle and bequest hypotheses on a set of unique Canadian micro-historical data. Modern studies of present-day saving and wealth holding which link probate to census data are not possible because of confidentiality restrictions regarding release of census data on individuals. For example, individual data from the 1901 Census will not be made available to the public until 1993.

The use of probate records to piece together estimates of wealth for a sub-section of Canada can be seen as an attempt to generate statistics for the stock side of the economy. Although these estimates are for one county, over time, as estimates are done for other regions of the country, a comprehensive picture of the level of wealth in nineteenth century Canada will emerge. Such a data base will help provide information on the process of wealth accumulation in Canada.

It should be added that changes in saving behaviour during the late

nineteenth century could also have implications for an understanding of the industrialization of Canada. Though extrapolating the results from one county to the entire country can be a risky procedure, if a Life-Cycle Transition occurred, then knowing when this transition occurred could ultimately shed light on the process of industrial development in Canada.

For example, different speeds in making the Life-Cycle Transition across regions could help explain regional differences in manufacturing development. Perhaps one reason that nineteenth century Quebec industry was labour-intensive whereas Ontario's was capital-intensive is that Ontario preceded Quebec in making the transition to life-cycle saving. This would have created a larger pool of domestic savings in Ontario and therefore led to greater capital formation.

CHAPTER 2

METHODOLOGY OF COMPILING THE DATA SET

2.1 Introduction to Wentworth County

This study will use data from Wentworth County which, in the latter half of the nineteenth century, comprised the City of Hamilton, the Town of Dundas and the rural townships of East and West Flamborough, Beverly, Ancaster, Glanford, Binbrook and Saltfleet. (See Figure 2.1.1.) Wentworth County is a good choice for this study because by the latter half of the nineteenth century it was well settled and a solid infrastructure of record keeping was in place. In addition, there were well-defined urban and rural areas.

Wentworth County was initially settled by Europeans in the late eighteenth century and by the latter half of the nineteenth century, Wentworth County was undergoing a process of urbanization and industrialization. In 1871, the population of Wentworth County was 57,599 of which 29,851 (44.0%) resided in the urban centers of Hamilton and Dundas. By 1891, the population of the County was 76,445 of which 50,791 (60.4%) resided in Hamilton and Dundas.⁴⁶

Hamilton and Dundas both aspired to be the regional economic center during the early nineteenth century but by 1850 Hamilton had emerged the clear winner and proceeded to dominate its hinterland. Hamilton's prominence, as a commercial and later industrial center, was the result of its strategic position at the head of Lake Ontario which enabled it to reap the benefits of being a transshipment point. In this sense, Hamilton was similar to other Great Lakes cities such as Chicago, Detroit, Duluth and, later on, The Lakehead.

In the latter part of the nineteenth century, Hamilton made the transition

⁴⁶Source: Census of Canada, 1871, 1891.

from a commercial city serving a local agricultural hinterland to an industrial city. Hamilton managed to retain its role as a distribution center for groceries, dry goods and hardware as well as a modest financial role, with the Bank of Hamilton expanding into the Canadian West⁴⁷ with the development of the Prairie Wheat Economy, while it acquired an industrial sector which emphasized iron and steel products.

The agricultural sector was well established, the region having been pioneered in the late eighteenth century. The average farm size between 1871 and 1881 declined from 81.4 acres to 69.95 acres.(See Table 2.1.1.) Wheat, barley, oats, turnips and potatoes were the principal field crops together accounting for over 80% of the field crops produced in Wentworth County. (See Table 2.1.2.)

Agricultural trends in Wentworth County seem to mirror those noted by Marvin McInnis⁴⁸ for Canada in the late nineteenth century. According to McInnis, the transformation of Canadian agriculture to mixed farming from wheat production occurred between the late 1850s and late 1860s. However, the 1870s saw a 'mini wheat boom' which peaked in the early 1880s. The late 1880s saw a reversal of the 1870s 'wheat boomlet' and a return to the trend towards cattle and mixed farming.

In Wentworth County, the process of agricultural change produced two trends in farm size. Some individuals tried to increase their land holdings, as revealed by the increase in the number of farms of over 100 acres, while others changed their operations from wheat to mixed farms with cattle and small orchards which were less land intensive, hence resulting in smaller farms. The

⁴⁷John C. Weaver, *Hamilton An Illustrated History* (Toronto, James Lorimer and Company, 1982), p. 79.

⁴⁸Marvin McInnis, "The Changing Structure of Canadian Agriculture, 1867-1897," *Journal of Economic History*, Vol. XLII, (March 1982), pp. 191-98.

mini-wheat boom served as an incentive for farmers with available resources to increase their holdings of land between 1871 and 1881 as wheat growing was land intensive.

Amongst the probated decedents of Wentworth County the percentage of farmers with real estate valued at less than \$1000 rose from 5% in 1872, to 6.9% in 1882 and finally to 13.5% by 1891. (See Table 3.3.14.) The percentage of farmers with real estate valued between \$1000 and \$5000 dollars declined from 75% in 1872 to 51.7% in 1882 and reached 45.9% by 1892. Finally, the percentage of farmers with real estate valued at greater than \$5000 rose from 15% in 1872 to 17.3% in 1882 and reached 35.1% in 1892. Farms of small and high value grew at the expense of medium-valued farms.

A trend towards smaller farms is also evident when one examines the acreage of farms held by probated decedents. Whereas between 1872 and 1892, the proportion of farms of 50 acres or less increased, the proportion from 50 to 100 acres stayed approximately the same and the proportion 100 acres and over in size declined. This would suggest that the movement towards market gardening and orchards was quite pronounced amongst the farmers in this sample of probated decedents. However, the wheat 'boomlet' did not increase the proportion of large farms.

The upsurge in wheat production in Wentworth County is captured in the crop statistics which show the share of wheat in field crops rising from 13.41% in 1871 to 17.26% in 1881 and then declining to 13.59% in 1891. The acreage planted in wheat rose from 25,314 in 1871 to 36,858 in 1881 and then declined to 29,483 in 1891. The trend towards new farming arrangements such as market gardens and orchards is captured by Census figures on acreages in gardens and orchards which show a rise in acreage from 7,281 in 1871 to 10,476 in 1881. (See Table 2.1.3.) The percentage increase in acreage in gardens and orchards between 1871 and 1881 was 44.1% while the increase in total occupied land during the same period was

2.2 The Data Sources

The data for this study come from three primary sources: the probate records of the Wentworth County Surrogate Court, the Census of Canada for the years 1871, 1881 and 1891, and the tax assessment and collector rolls for the various townships and municipalities.⁵⁰

The probate records are the records of courts responsible for handling the estates of deceased persons. Under the **Surrogate Courts Act, 1858**⁵¹ a surrogate court with the power to issue grants with the same power throughout the province⁵² was established in each and every county in Ontario. These replaced the Court of Probate which had been established in 1793. The probate records are a rich and virtually untapped source of data which provide information on the size and composition of individual estates, the number of offspring, place of residence, date of death and the division of the estate amongst the heirs.

By and large, the Ontario Surrogate Court system had its origins in the Ecclesiastical Courts of England which had jurisdiction in matters of wills and probate until the **English Court of Probate Act of 1857**.⁵³ In legal matters not covered by Ontario statutes, recourse was made to the English Statutes.

⁴⁹Total occupied land in Wentworth County in 1871 was 264,313 acres and in 1881, 272,436. Source: **Census of Canada, 1871, 1881**. A separate County total for acreage in gardens and orchards was not available for 1891.

⁵⁰The primary sources for the data set were:(1) Public Archives of Ontario. Wentworth County Surrogate Court Wills. 1872- No.758-830, 1882- No. 1710-1824, 1892- No. 3222-3453. (2) Public Archives of Canada. Census of Canada, 1871, 1881, 1891. Manuscript. Wentworth County.(3) Hamilton Public Library, Special Collections and Archives of Ontario. Assessment Rolls. Wentworth County. [Hamilton, Dundas, Binbrook, East Flamborough, West Flamborough, Beverly, Ancaster, Glanford, Saltfleet, 1868-1891.]

⁵¹**Statutes of Canada, 22 Vict., Cap. 93, 1858.**

⁵²Alfred Howell, **The Law and Practice as to Probate, Administration and Guardianship** (Toronto, Carswell and Co., 1880), p. 12.

⁵³Howell, 1880, pp. 4-9.

The actual probate of a will can be defined as:⁵⁴

a document in the prescribed form and under the seal of the proper Court in that behalf, which certifies that the will, a copy of which is there unto annexed, was duly proved and registered in the Court, and that administration of the property of the testator was duly committed by the Court to the executors whose names and descriptions are therein set out.

Besides granting administration, probate served to authenticate the will and as evidence of the character of the executor.⁵⁵ In intestate cases, application was made to the Court for administration by an interested party (usually widow or next of kin but sometimes a creditor) and once granted, distribution of the estate was made according to law.⁵⁶

The format of the probate records was fairly consistent as standardized forms were in existence. There was usually an application for probate which stated the name, occupation, place of residence and date of death of the deceased and the value of property over which administration was to be granted.

Prior to 1886, an executor could deal only with a testator's personal estate. It was not until the **Devolution of Estates Act** passed in 1887⁵⁷ that

⁵⁴A. Weir, *The Law of Probate* (Toronto, Canada Law Book Company Ltd., 1907), p. 129.

⁵⁵Howell, 1880, p. 155.

⁵⁶See Howell, 1880, p.229. Briefly, if the surviving spouse was the husband, he was entitled to the whole of the estate. If the wife survived and there were children or grandchildren, she was entitled to one third. In the absence of children or grandchildren, the widow was entitled to one half and the husband's kin the other half.

This method of estate division was fairly standard practice in Britain's colonies and former colonies having been put into statute in 1670. See Carole Shammass et al., *Inheritance in America from Colonial Times to the Present* (New Brunswick and London, Rutgers University Press, 1987), p. 26.

⁵⁷*Revised Statutes of Ontario*, 1887, Cap. 108.

administration could be granted over both real and personal property.⁵⁸ Prior to 1886, lands could be devised by will with the will having the force of a deed, therefore obviating the need for an executor to administer the land.⁵⁹

Along with the application for probate there was usually a statement of death, a statement of execution of the will by witnesses to the will, an executor's oath affirming the authenticity of the will, the will itself and any codicils, and the document granting administration by the Court. The letters of administration from the Court essentially granted jurisdiction over the estate from the judge to the person whom the testator had entrusted as his executor.⁶⁰

Of key importance in the probate records is, of course, the inventory and valuation of property. The inventory was conducted by the administrator or executor of the estate and legally needed only to be performed in response to request by a legatee or creditor but in practice was brought in voluntarily without awaiting the compulsory summons.⁶¹

Any claims against the estate of the deceased were lodged by creditors with the Surrogate Court and the value of these claims against the estate were taken into account in the inventory valuation. The value of real estate, for example, was net of any mortgage outstanding on that land.

⁵⁸Weir, 1907, p. 108.

⁵⁹In cases where land was devised by will, the will would be found not in the probate records but in the land records. A search of land records for additional wills in 1872 and 1882 was not made because references to these documents in the Abstract Index of Deeds were listed by township lot and concession number rather than summarized by year. More importantly, such wills would not be accompanied by inventories and in the absence of values stated in the will would require some alternative means of valuing the property.

⁶⁰Howell, 1880, p. 144.

⁶¹Howell, 1880, p. 327.

Prior to 1886, an inventory was:⁶²

a statement of all the goods, chattels, wares and merchandize , as well moveable as not moveable, which were of the person deceased at the time of his death within the jurisdiction of the Court. A proper inventory should enumerate every item of which the personal estate consisted and should specify the value of each particular. But unless by order of court, or in obedience to a citation, an inventory does not set forth the goods and chattels in detail.

After this date, real estate was included in the inventory and valuation.

In the 1892 records, there are 16 categories under which wealth is categorized for the inventory. These categories are: (1) Household Goods and Furniture, (2) Farming Implements, (3) Stock in Trade, (4) Horses, (5) Horned Cattle, (6) Sheep and Swine, (7) Book Debts and Promissory Notes, (8) Money Secured By Mortgage, (9) Money Secured by Life Insurance, (10) Bank Shares and Other Stocks, (11) Securities for Money, (12) Cash on Hand, (13) Cash in Bank, (14) Farm Produce of all Kinds, (15) Real Estate, and (16) Other Property.

The wealth data obtained from the probate records are not subject to the bias of understatement. There were no succession duties in Ontario until July 1, 1892 when the **Succession Duty Act** was passed⁶³ in an effort to help meet rising provincial expenditures.⁶⁴ However, the Act allowed for numerous exemptions. The Act did not apply:⁶⁵

⁶²Howell, 1880, p. 326.

⁶³**Statutes of Ontario**, 55 Vict., Cap. 6, 1892.

⁶⁴James Mavor, "Finance and Taxation," **Canada and its Provinces**, eds. Adam Shortt and Arthur G. Doughty (Toronto, Glasgow, Brook and Co., 1914), p. 251.

⁶⁵**Statutes of Ontario**, 55 Vict., Cap.6, 1892, Sect. 3.

- (1) To any estate the value of which, after payment of all debts and expenses of administration, does not exceed \$10,000; nor
- (2) To property given devised or bequeathed for religious, charitable or educational purposes; nor
- (3) To property passing under a will, intestacy or otherwise, to or for the use of the father, mother, husband, wife, child, grandchild, daughter-in-law, or son-in-law of the deceased, where the aggregate value of the property of the deceased does not exceed \$100,000 in value.

Thus, direct heirs with a bequest of less than 100,000 dollars were not required to pay succession duties provided they were related to the deceased. Thus, the presence of estate taxes provided no apparent reason to underestimate the value of the estate for almost all decedents.

There were fees for probating an estate that were charged by the court and these were based on the size of the estate. There were fees set by the **Surrogate Courts Act** for the paper work involved in probating an estate by the Registrars and Officers of the Surrogate Court. (For example, in 1880, 50 cents was charged for receiving and entering applications and 1 dollar for preparing all necessary affidavits.) In addition, there was a fee for granting probate and recording it in the Register Book that was based on the size of the estate. When the property devolving was under \$1200, the fee was \$1; from \$1200 to \$4000, \$1.75; from \$4000 to \$8000, \$2.50 and above \$8000, \$4.⁶⁶ When the value of personal estate was under \$1200, the total bill of court costs in non-contentious

⁶⁶Howell, 1880, p. 139.

business would be \$11.95.⁶⁷

Fees for attorneys were also set by the **Surrogate Courts Act** and along with set fees for consultation and paperwork, there were also fees based on the size of the estate. The probate of personal estate under \$1200 in non-contentious business would involve \$3.95 in legal costs.⁶⁸

It is difficult to judge what the impact of these fees would have been on the reporting of assets. The entire process of probate can be viewed as an institution designed to minimize the transactions costs of transferring property from the dead to the living. Not including certain assets in the inventories that are part of the probate records merely to minimize court and legal fees would have interfered with the process of property transfer. There is no evidence that these fees were so steep as to result in underestimating the value of assets.

Moreover, save for the lawyers, the frequency with which probate incidents occurred in one's life would probably not have been sufficient to provide an incentive to devote time and resources to minimizing fees. Also, since fees were set by the **Surrogate Courts Act**, there would have been no competition amongst lawyers.

As an additional note, it should be added that the bills of attorneys for any "...fees, charges or disbursements in respect of any business transacted in a Surrogate Court..." were also subject to taxation in said Court.⁶⁹ In 1880, this taxing of costs amounted to 50 cents⁷⁰ and was in the nature of a lump sum

⁶⁷Howell, 1880, p.488.

⁶⁸Howell, 1880, pp. 141-142.

⁶⁹Howell, 1880, p. 56 and **Surrogate Courts Act**, 1858, Sec. 72.

⁷⁰Howell, 1880, p. 140.

tax. Again, it is difficult to see what if any impact these charges would have on the reporting of assets. On a personal estate of \$1200, all these fees and costs would amount to about 1.325% of the estate.

One would expect that since probating an estate was necessary to transfer property from the dead to the living and the Surrogate Courts were the sole institution for so doing, then the probate records would capture all of a deceased's property. There were some official exceptions made, however, as in the case of small savings.

In the case of Post Office Savings Banks, if the deposit of the deceased was less than \$300, the postmaster could divide up the funds amongst the widow or relatives of the deceased independent of the courts. If greater than \$300, then letters of administration were required.⁷¹ Similar provisions existed for funds in building societies and Dominion Government Savings Banks. These provisions, however, did not extend to other private savings banks.

Again, it is difficult to judge how much wealth would be ignored by the probate records because it was kept in the form of Post Office or Dominion Government Savings Banks. Evidence suggests that during the late 1880s, at least relative to private banks, Post Office and Dominion Government Savings Banks offered the less attractive interest rates. For example, in 1889, the rate of interest allowed by the banks on deposit was in most cases 4% whereas government and Post Office Savings paid $3\frac{1}{2}\%$.⁷²

The year 1889 saw a decrease in the amount deposited at government savings banks "... owing to the reduction of the rate of interest paid by the Government from 4 per cent to $3\frac{1}{2}$ per cent ... naturally resulting in the attraction of a

⁷¹Howell, 1880, p. 148.

⁷²Statistical Yearbook of Canada, 1890, p. 480 and 488.

large amount of savings from the lower to the higher rate."⁷³ The suspicion is that these government-sponsored savings banks would not account for a great deal of wealth. The Post Office Saving banks, for example, were set up to take the savings of working people who could not save enough to make a deposit at a private bank which had a high minimum deposit requirement. As noted in the Canadian Statistical Record:⁷⁴

The principal object of the system is to encourage the habit of saving among the working classes by providing a place where they can deposit their surplus earnings at a fair rate of interest and with absolute security, no practical limit being made to the smallness of the deposit [minimum deposit was 1 dollar]. This latter provision is one of the main features of the scheme, as the ordinary banks do not value this class of business and in many cases will not receive deposits under a sum which would compel many people to hoard their money for a length of time, before they could save enough to place it in a position of safety.

On June 30, 1886 the average amount on deposit at Post Office Savings Banks was \$212.18 per depositor⁷⁵ but on a per capita basis (using the population of Ontario and Quebec) there was only \$4.84 on deposit at such banks. Only one out of every 43 inhabitants had a deposit at a Post Office Saving Bank.

2.3 Construction of the Data Set

Following is the methodology used to construct the data set. All the individuals whose estates bear an application for probate date falling in the years 1872, 1882 and 1892 were selected as candidates for the final sample.

⁷³Statistical Yearbook of Canada, 1890, p. 489.

⁷⁴Canadian Statistical Record, 1886, p. 351.

⁷⁵Canadian Statistical Record, 1886, p. 352.

Sampling was confined to the years 1872, 1882 and 1892 so that the individuals could then be linked backwards to the Census returns for 1871, 1881 and 1891 in order to obtain information on age, occupation, religion and family size.

The data set does not go beyond 1892 to 1902 because, as mentioned earlier, at the time the sample was taken the detailed returns of the 1901 Census were not scheduled to be released until 1993 because of confidentiality restrictions. Nor do the data extend to the period before 1871 because there would be insufficient numbers of probate records with which to build an adequate sample.

The probate records are numbered, with 1872 running from #758 to #830 for a total of 72 (two of which were missing bringing the total to 70), 1882 from #1710 to #1824 for a total of 115, and 1892 from #3222 to #3453 for a total of 231, resulting in a total of 416. An attempt was then made to link these individuals to the corresponding Census return. On the whole, a Census link was made for about 69.7% of the initial 416 individuals (81.5% if one excludes the omitted individuals as described below).

For the 1872 individuals, six were omitted because they were not suitable for Census tracing having died before the Census year, or were foreigners with property in Wentworth County. Of the remaining 64, 14 could not be located in the Census leaving 50 individuals. For 1882, a total of 29 individuals were omitted -- 9 because they were unsuitable for tracing and 20 because they could not be located in the Census -- leaving 86 individuals. For 1892, 34 individuals were omitted because they were unsuitable for tracing while another 43 could not be located in the Census; these omissions left 154 individuals for inclusion in the study.

The individuals traced through the Census did not constitute the final sample because of the nature of the probate data. The wealth data provided by the probate records are not uniform over time. For 1872, for example, there are

estimates of total personal estate but no detailed inventory breaking down the estate into its components. As a result, no real estate estimate is available. For 1882, there is detailed information on personal estate and effects but again no estimate of real estate. Real estate is not reported on probate record inventories until after 1886. The 1892 records are complete, however, providing detailed information on personal estate as well as real estate.

The need to derive real estate estimates for individuals probated in 1872 and 1882 resulted in attempts to trace the individuals through tax assessment rolls in the various municipalities and townships in which they resided at the time of death. Figure 2.3.1 presents a summary of the decision rules utilized to assign and calculate real estate values.

The general rule of thumb followed was that if the presence of real estate was implied by the probate documents then an estimate had to be derived or the individual was omitted. Attaching a value of zero to real estate when there was a strong probability it was otherwise would tend to bias the real estate content of an individual's wealth downwards.

The tax assessment rolls are a valuable source of information. By 1867, municipal government in Canada was fairly well advanced⁷⁶ and had developed effective means for taxing real property and to a lesser extent personal property.⁷⁷

The period from 1867 to 1890 was marked by the rise of municipal services such as roads and sidewalks, organized garbage collection, sewage and drainage, fire and police protection, all of which led to revenue demands. Since most of these services were related to the servicing of property, taxes on property were

⁷⁶J.H. Perry, *Taxes, Tariffs and Subsidies: A History of Canadian Fiscal Development*, Vol. I, II (Toronto, University of Toronto Press, 1955), p.20.

⁷⁷Perry, 1955, p.33.

relied upon to provide them.⁷⁸

The law regarding municipal assessment was subject to change over time but the period 1872-1892 is governed largely by the **Consolidation Act of 1866**.⁷⁹ Under this act, all real and personal property, subject to exemptions, as well as for the first time, income, was subject to taxation. Save for the inclusion of income as assessable property, this Act was essentially the same as the **Consolidation Act of 1853** which was the first act that really provided for the imposition of a general property tax.⁸⁰

Another difference was that real and personal property was to be assessed at their actual value "as they would be appraised in payment of a just debt from a solvent debtor"⁸¹ whereas, previously, taxes on real estate were laid upon the rent from land which was set at 6% of the actual cash value.⁸²

For the purposes of the assessment, 'real estate' or 'real property' was defined as:⁸³

all buildings or other things erected upon or affixed to the land, and all machinery or other things so fixed to any building as to form in law part of the realty, and all trees or underwood growing upon the land, and all mines, minerals, quarries and fossils in and under the same except mines belonging to her Majesty.

⁷⁸Perry, 1955, p. 79.

⁷⁹**Statutes of Canada**, 29-30 Vict., Cap. 53.

⁸⁰Mavor, 1914, p. 262.

⁸¹**Statutes of Canada**, 29-30 Vict., Cap. 53, Sect. 30.

⁸²David G. Burley, **The Businessmen of Brantford, Ontario: Self-Employment in a Mid-Nineteenth Century Town** (Ph.D. diss., McMaster, 1983), p. 389 and **Statutes of Canada**, 16 Vict., Cap. 182, Sect. 12.

⁸³**Statutes of Canada**, 29-30 Vict., Cap. 53, Sect. 3.

'Personal estate' was defined as:⁸⁴

all goods, chattels, shares in incorporated companies, money, notes, accounts, and debts at their full value, income and all other property, except land and real estate...

There were, however, numerous exemptions to the property liable to taxation. Along with Crown property and places of worship, exemptions included the income a farmer derived from his farm, bank stocks, railroad stock, net personal property under \$100, and income under \$300, household effects of whatever kind, books and wearing apparel.⁸⁵ The \$300 income exemption was later raised to \$400.⁸⁶

A problem with the tax assessment rolls was a lack of completeness. Very often several years would be missing, leading to the substitution of collector rolls if available. When even the collector rolls were missing, it was necessary to work back to the first available collector or assessment roll. The bulk of real estate tracing was done using assessment rolls for 1871, 1881 and 1891. Additional assessment rolls used all occurred within about five years before these dates with the exception of East Flamborough. For East Flamborough in 1882, the nearest available assessment roll was 1871.

The real estate tracing procedure was followed out of necessity in 1872 and 1882 and out of a desire for consistency in 1892. The presence of two separate real estate estimates for 1892 meant that a comparison could be made to see if there was under-reporting of wealth in the assessment rolls. On average, the assessment rolls showed that in rural areas of Wentworth County, there was an understatement of about 40% relative to what was reported in the probate

⁸⁴Statutes of Canada, 29-30 Vict., Cap. 53, Sect. 4.

⁸⁵Statutes of Canada, 29-30 Vict., Cap. 53, Sect. 9.

⁸⁶Statutes of Ontario, 32 Vict., Cap. 36.

records. No such comparison was possible for personal estate as the assessment rolls tended to be much more sporadic in their reporting of personal property.

Of the 50 individuals in 1872 who were linked through the Census, all 50 had real estate estimates derived, in part as a result of the completeness of the 1871 Census. The 1871 Census contains data on individual land holding and hence, it was possible to multiply acreage by the county average value per acre if no reference could be found to the value of the same property in the assessment rolls. (See Table 3.3.8 for the values per acre used.) Of the 86 individuals who were traced through the Census in 1882, seven could not have a real estate value assigned to them, leaving a final sample of 79. For East Flamborough in 1882 the nearest available assessment roll was 1871. These estimates were compared to ones constructed by multiplying the acreage under consideration by the average value of real property in Wentworth County in 1882; the higher of the two estimates was accepted. As for 1892, there are real estate estimates for all 154.

The final set of wealth holders from 1872, 1882 and 1892 totals 283. Of the original 416 candidates for the sample, then, 68% qualified for inclusion in the final set of wealth holders.

There are certain aspects of the assessment roll data that should be mentioned. First, only real estate within Wentworth County is included but some individuals owned property outside the County. For example, one Robert Warren Kerr (*WC # 784, 1872*) had real estate in Hamilton valued at \$1650 in the assessment rolls but his will mentioned land ownership in Guelph and Owen Sound, so that attempts at an estimate for this property had to be made. In this case, successful estimates were made bringing the total value of Kerr's real estate to \$8250.00.⁸⁷

⁸⁷Kerr's two lots in Owen Sound were valued at \$1600 and his 96 acre farm in the township of Puslinch near the Guelph line at \$5000. These values were arrived at

Second, given the purpose of the assessment rolls, there is a definite incentive for rate-payers to underestimate their wealth. For 1872, 1882 and 1892, the totals for personal estate and effects taken from the assessment rolls, when available, are well below the recorded totals in the probate records. For example, James Clowting (WC # 1714, 1882) had a personal estate in probate valued at \$7,300 but the assessment roll assigned him a value of only \$250.⁸⁸

The undervaluing of personal estate in the assessment rolls is not really a problem because there are complete personal estate estimates in the probate records. In the case of real estate, however, the assessment rolls form the sole basis of the estimate for 1872 and 1882 and thus undervaluation is of some concern.⁸⁹ A comparison of real property values using the 1892 data shows that the assessment rolls, on average, tended to undervalue real property anywhere from 23-42%.⁹⁰ and therefore it would be necessary to scale up the real estate values in 1872 and 1882 to get an accurate picture of total wealth.⁹¹

Though taxation was a motive for undervaluing one's property, in the case of personal property it was also due to the manner of recording assessed value.

via statements in the will that stipulated payments to be made in lieu of land. These payments were assigned as the values of the real property. e.g. "if it should happen that I shall during my lifetime have parted with the farm in Puslinch my said executor shall hold in lieu of such farm for my said son Frederick Warren Kerr the sum of five thousand dollars."

⁸⁸It should be acknowledged that this may not necessarily represent an attempt to evade taxes. The sum of \$250 established a man's right to vote.

⁸⁹It is interesting to note that in a 1979 paper, Jim Davies, using 1970 Survey of Consumer Finance Data, found that this data tended to underestimate total assets by 34% and mean wealth by 35%. See Jim Davies, "On the Size Distribution of Wealth in Canada," *Review of Income and Wealth*, Series 25, (September, 1979), pp. 237-59.

⁹⁰The average undervaluation in urban areas was 23%, in rural areas it was 42%.

⁹¹This is not of any concern for the econometric work as all real estate figures would simply be scaled by a constant. However, estimates for total wealth using scaled real estate figures are presented for reference in Chapter 3.

For example, according to the Consolidation Act of 1866,⁹² for personal property valued from \$100 to \$200, \$100 was the assessed value entered; from \$1000 to \$2000, \$1000 was the assessed value entered. Moreover, as previously mentioned, there were numerous exemptions for personal property.

Given the numerous exemptions for personal property, real estate was the main basis of assessment whereas personal property largely escaped it. By the 1870s, personal property was 'grossly underassessed' and in Toronto, for example, it was felt that as much as 90% of personal estate went unreported.⁹³

Of the three years in the sample, 1892 provides the most comprehensive and detailed data for wealth. The probate data for 1892 are excellent with a detailed inventory and valuation for a variety of property. Moreover, one can compare the information with that of the assessment rolls where possible, providing a useful cross reference. As already mentioned, this allowed for an attempt to gauge the extent of underestimation of assets on the assessment rolls. It should be noted that such cross-referencing is impossible even in the best modern data sets with information on wealth holding.

There are some additional potential problems with the data set as a whole having mainly to do with the manual linking process between probate, Census and assessment rolls. There is always the possibility that there will be an incorrect match because of the legibility and condition of the records as well as the diligence of the original enumerators and assessors. This raises the possibility that some individuals from the original sample of 416 may have been incorrectly omitted or included but, at the same time, doublechecking should have reduced most of this error.

⁹²Statutes of Canada, 29-30 Vict., Cap. 53.

⁹³Burley, 1983, pp. 393-394.

As for those deceased individuals who did not have their estates probated, they likely had zero wealth or disposed of their estates *intervivos*. Those individuals who disposed of their property *intervivos* during the year before their death are likely accounted for in this study. There were several instances in the 1892 data where the probate records stated there was no real estate while the assessment rolls for the year previous showed ownership of real estate. Therefore, it is possible that with respect to real estate a great deal of *intervivos* transfer activity has been captured by use of the assessment rolls.

It also becomes a matter of some interest if those individuals who could not be located in the Census during the tracing procedure differed from those who could. Such a comparison was possible in 1892 because the probate records provide a complete wealth estimate. In the 1892 final set of probated decedents, it was found that 72.7% were male, 76.0% were testate and 78.6% reported owning real estate. In the 1892 set of individuals who could not be traced in the Census, 62.8% were male, 74.4% were testate and 60.5% reported owning real estate. Mean wealth in \$1900 for the former was \$9715.77 while for the latter it was \$6851.72. These differences can be attributed to the fact that there was a higher proportion of females in the group that could not be located in the Census. In general, females owned less wealth than males and a smaller percentage of females than males reported owning real estate.

A final problem concerns differences and inconsistencies between the three data sources. For example, in the case of Robert Warren Kerr, the Census puts his age at 60 years whereas the assessment roll puts it at 54. Fortunately, such cases were rare but when they did occur, the practice was to favour the probate to the Census and the Census to the assessment rolls. Being a legal instrument, the probate records are likely the most reliable of the three.

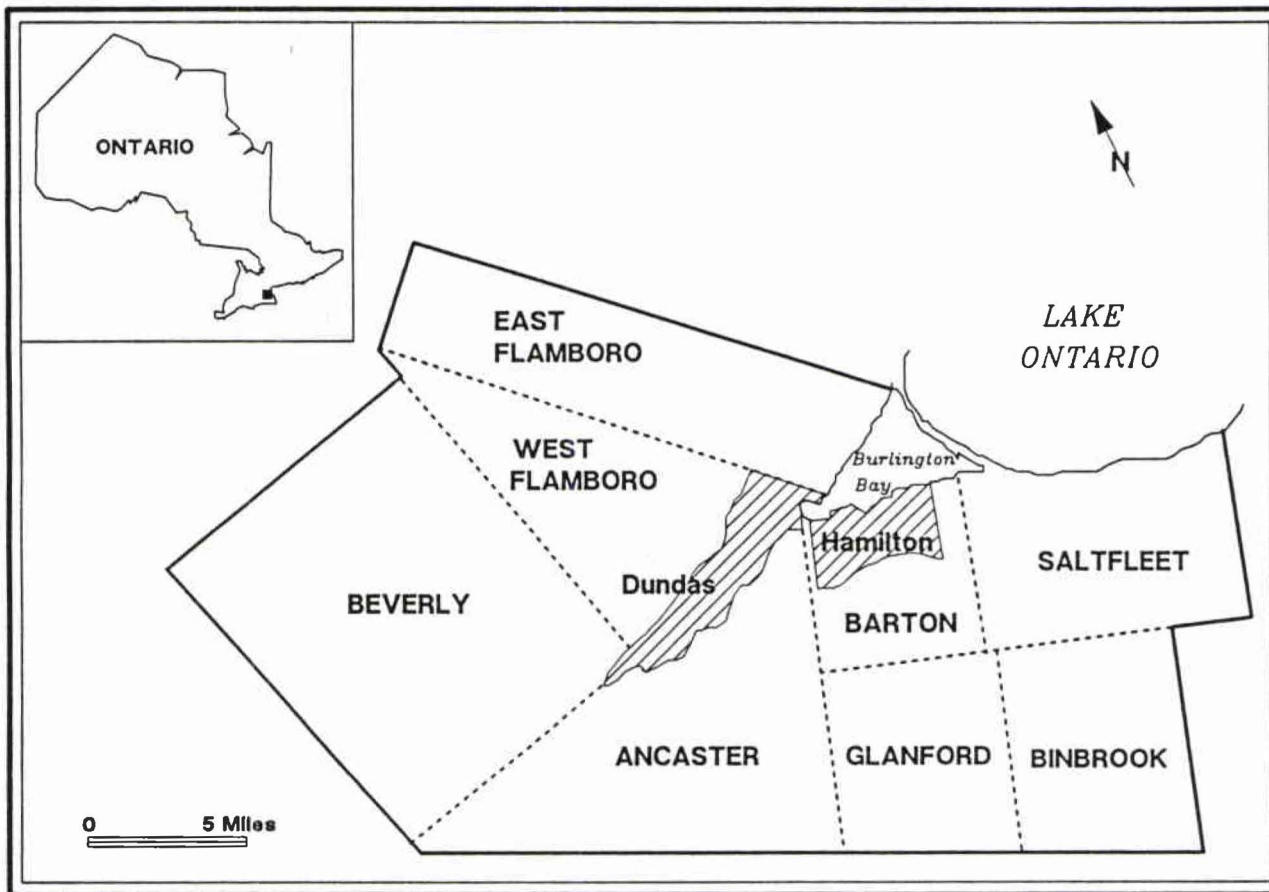
2.4 Conclusion

The final micro-data set consists of 283 probated decedents whose probate records were supplemented with Census and tax assessment roll data. The probate records, being legal documents assembled by professionals, are of high quality as a source but their coverage is not consistent throughout the time period. Complete coverage of real and personal estate only exists for the 1892 probated decedents.

This micro-data set can be considered to be quite unique, relative to modern data sets, in the manner in which it links economic and personal characteristics of individuals. For example, it would not be possible to construct such a data set for 1982 by linking probate records to the 1981 Census because the confidentiality restrictions of the Census would prohibit the use of such personal information.

Consisting of only 283 probated decedents, this micro-data set is relatively small but at the same time it can be considered to be of fairly high quality. There are three independent sources of data which provide cross checks. Moreover, the probate records are the key source of data and, being legal records, they can be considered to be free of many of the problems faced by individuals relying on modern survey data.

FIGURE 2.1.1
WENTWORTH COUNTY , ONTARIO
(1875)ⁱ



ⁱDundas and Hamilton area representations are approximate.

TABLE 2.1.1
FARMS IN WENTWORTH COUNTY ⁱ

(Source: Census of Canada)

	1871				
	Number of Farms				
	10 acres	10-50	50-100	100-200	200+
Wentworth South	263	395	612	319	59
Wentworth North	264	402	523	329	55
Hamilton	20	8	5	1	-
Total Farms 1871: 3246					
Total Acres Occupied 1871: 264313					
Average Farm Size 1871: 81.43 acres					

	1881				
	10 acres	10-50	50-100	100-200	200+
Wentworth South	575	404	647	359	42
Wentworth North	419	404	550	336	59
Hamilton	75	11	4	1	-
Total Farms 1881: 3886					
Total Acres Occupied 1881: 271836					
Average Farm Size : 69.95					

NOTES

ⁱ
Similar figures were not available in the 1891 Census. Wentworth South comprises Saltfleet, Binbrook, Barton, Glanford and Ancaster Townships. Wentworth North comprises Beverly, West Flamborough and East Flamborough townships and the Town of Dundas.

TABLE 2.1.2

FIELD PRODUCTS IN WENTWORTH COUNTY
(Source: Census of Canada)

	1871	
	Bushels	% Distribution. (excluding Hay)
Spring Wheat	45420	1.74%
Winter Wheat	305352	11.67
Barley	284101	10.85
Oats	451782	17.26
Rye	1725	0.07
Peas	171447	6.55
Beans	925	0.04
Buckwheat	20218	0.77
Corn	81058	3.10
Potatoes	371553	14.19
Turnips	750931	28.69
Other Root Crops	127757	4.88
Grass & Clover	5290	0.20
Hay(tons)	49703	-

	1881	
	Bushels	% Distribution. (excluding Hay)
Spring Wheat	10083	0.27
Winter Wheat	625923	16.99
Barley	235934	6.41
Oats	886236	24.06
Rye	23391	0.64
Peas & Beans	93534	2.54
Buckwheat	15581	0.42
Corn	220792	5.99
Potatoes	456955	12.41
Turnips	853069	23.16
Other Root Crops	211069	5.73
Grass & Clover	5659	0.15
Hay(tons)	45093	-

1891

	Bushels	% Distribution. (excluding Hay)
Spring Wheat	79159	2.36%
Fall Wheat	377314	11.23
Barley	258321	7.69
Oats	782788	23.29
Rye	0.27	9192
Peas	264821	7.88
Beans	2405	0.07
Buckwheat	15829	0.47
Corn	106417	3.17
Potatoes	300233	8.93
Turnips & Other		
Roots	1086870	32.33
Grass & Clover	3751	0.11
Hay(tons)	74181	-

TABLE 2.1.3
CROP ACREAGE IN WENTWORTH COUNTY
(Source: Census of Canada)

Acres Planted in Wheat		
1871	1881	1891
25,314	36,858	29,483

Acres in Gardens and Orchards ^{<i>i</i>}	
1871	1881
7,281	10,476

NOTES

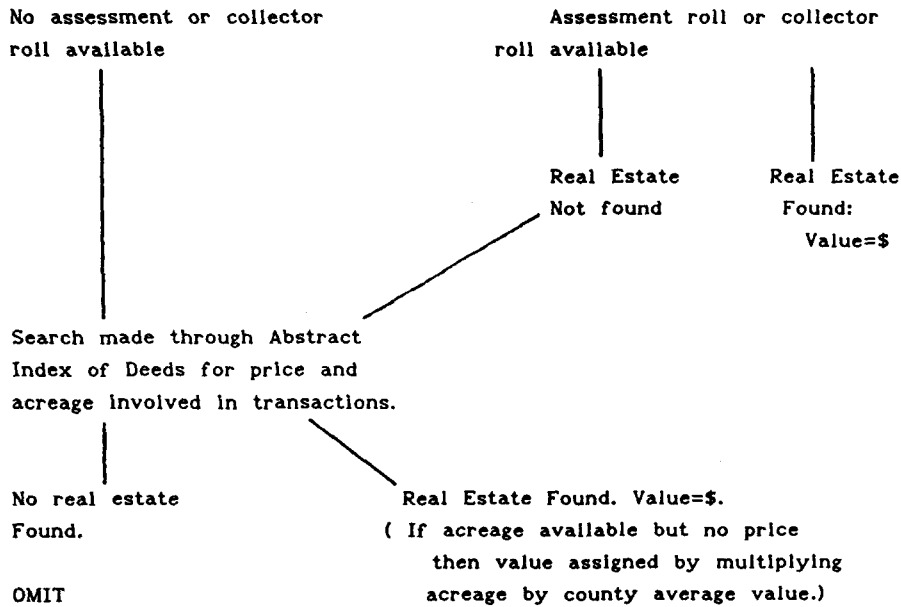
^{*i*}
Total acreage in gardens and orchards not available for 1891.

FIGURE 2.3.1

PROCEDURE USED TO ASSIGN REAL ESTATE VALUES: 1872¹ & 1882

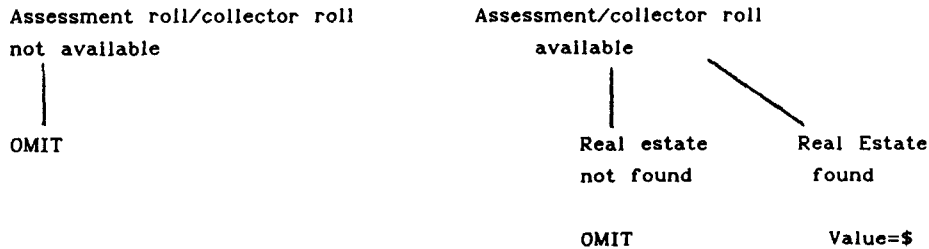
CASE A

Presence of real estate specifically mentioned in will and such property described.



CASE B

Presence of real estate mentioned in will but not specifically described.



CASE C

Presence of real estate not specifically mentioned in probate records.

Assessment/collector roll
not available

|
Value=0

Assessment/collector roll
available

| \
Real estate Real estate
not found found

Value=0 Value=\$

Results of real estate procedure:

1872:		Final Set	Omissions
	Case A	15	0
	Case B	7	0
	Case C	28	0
1882	Case A	21	1
	Case B	20	6
	Case C	38	-

Notes

i

For 1872, real estate estimates were derived for all individuals who were traced through the Census. This is because schedules detailing property ownership for the 1871 Census were available.

CHAPTER 3

SOME AGGREGATE STATISTICS ON THE SET OF PROBATED DECEDENTS

3.1 The Probated Decedents of Wentworth County: An Introduction

Once the data on these 283 probated decedents had been compiled, the immediate questions were: who were these individuals and what were their collective characteristics? The first part of this chapter will be concerned with the members of the sample as individuals and the balance of the chapter will deal with the descriptive statistics of the group.

On an individual basis, much is revealed about these probated decedents by their wills. Wills often reflect attention or inattention to detail, interests and generosity. For example, Edward Donnelly (*WC # 794, 1872*)¹ specifies in his bequest to his son:

to Edward Stevens my son I bequeath six forks,
two tablespoons and six teaspoons and as a trifling
token of my regard I give him my seals and his mother's
packet knife.

Peter Grant (*WC # 821, 1872*) gave instructions for the carrying on of his brewery business and as his wife was "not fitted for the brewery business and my executors are" gave them the option of purchasing the share of the business bequeathed to his wife. Edward Jackson (*WC #803, 1872*) left the sum of \$10,000 to Victoria College for the establishment of a theological chair.

Many of the notable citizens of the Hamilton-Wentworth area have found their way into this sample. The 1872 probated decedents include the Reverend Ralph Leeming (*WC #782, 1872*) whose life, according to the Dictionary of

¹The term in brackets is a reference to the probated decedent in the probate records. In the case of Edward Donnelly, it is to be read as Wentworth County Will number 794, 1872.

Hamilton Biography, was as "uneventful as it was long."² Despite this assessment, Reverend Leeming oversaw the building of St. John's Church and Parsonage in the Township of Ancaster in the mid-1820s.

The 1882 probated decedents include Adam Hope (*WC # 1788, 1882*), merchant and senator. Adam Hope was a wholesale iron and hardware merchant, president of the Savings Bank of the Hamilton Provident and Loan Society, director of the Bank of Commerce and a prominent Liberal for which he was rewarded with a Senate appointment in 1877.³

Also included in 1882 is John Blachford (*WC # 1739, 1882*) who in 1843 moved to Hamilton and opened a cabinet-making and upholstery business. By 1845, his skills in woodworking took him into undertaking and over the course of his career, John Blachford and his firm arranged 7,236 funerals. According to the **Dictionary of Hamilton Biography**, his "establishment on MacNab Street supplied all types of coffins, horse-drawn hearses, shrouds, and other funeral accoutrements to meet the needs and varied means of the community."⁴

The 1892 probated decedents contain some of the wealthiest men in the sample. Joseph Lister (*WC # 3431, 1892*) was the wealthiest of all the probated decedents with an estate of \$147,088.71, as gleaned from probate and tax assessment records. Lister was a prominent merchant who owned much of the prime commercial real estate in downtown Hamilton bounded by Rebecca, Hughson, King William and James Streets. On this land was erected the Lister Block which, rebuilt by his son after a fire in 1923, still stands.

The year 1892 also saw the departure from this mortal life of Michael

²T.M. Bailey, ed. in chief, **Dictionary of Hamilton Biography**, Vol. 1, (Hamilton, W.L. Griffin, 1981), p. 124.

³Bailey, p. 105.

⁴Bailey, p. 20.

Brennan (*WC # 3400, 1892*), a lumber merchant, with an estate of \$113,890.00 and of Thomas Henry Stinson (*WC # 3384, 1892*), a barrister, who died at age 32 with an estate of \$143,184.59. Mr. Stinson's death "in manhood's golden prime"⁵ undoubtedly came as a shock to many people in the city.

The final data set of probated decedents represents a fascinating body of personal and economic data which ranges from age and occupation to the odd scrap of detail about personal and family life. These individuals suggest a time that is at once instantly comprehensible and also very alien to the late twentieth century mind.

One can only imagine what must have come to pass in the life of one Julia Donovan (*WC # 3331, 1892*) who in her will leaves the bulk of her estate to her daughter and then proceeds to appoint one James Fitzgerald, "of Bay street north, in the said city of Hamilton, labourer and milkman" as the executor of her estate rather than her husband Jeremiah.

The role of religion in daily life is much in evidence in these wills. The wills routinely invoke the name of the Almighty in their preambles. But, as in the case of one James Griffith (*WC # 1735, 1882*), the pursuit of religious convictions from beyond the grave was not uncommon. In his will he instructs his son regarding his daughter as follows:

If my daughter Ellen should marry before her legacy is fully paid her... a man of previously notorious evil habits as intemperance or idleness or a man who is of the Roman Catholic faith - I expressly relieve my son Thomas of all further obligations.

How representative of the general population of Wentworth County were these probated decedents? Given the availability of biographical references for many of them, it would appear that many of them were more notable than the average

⁵Hamilton Spectator, "In Manhood's Golden Prime: Death of Thomas H. Stinson This Morning," June 29, 1892.

citizen. Biographical references in the Special Collections of the Hamilton Public Library were found for 18.0% of the final set of 1872 probated decedents, 38.0% of the 1882 probated decedents and 24.7% of the 1892 probated decedents.

One can also compare the original number of probated decedents (a total of 416) with the total number of deaths in the County. The total number of deaths in Wentworth County in the 12-month period preceding April 1871 was 828 according to the Census of Canada. Of these, only 308 were adults aged 21 years and over which reflects the high rate of infant mortality at the time. Of these 308 individuals, 176 were male and 132 were female.

Assuming that during the 12-month period the probate records were taken the same number of adult deaths occurred, then, given that a total of 70 estates were probated in 1872, it would appear that about 22.7% of individuals had enough wealth to make it worthwhile probating their estates. This figure rises to 25.6% in 1882 and 36.1% by 1892.⁶ This would suggest that the individuals in the sample assembled to study wealth holding are a rather select group. Within the total set of decedents, the probated decedents represent those with a level of wealth sufficient to make probating an estate necessary -- an economic elite.

If one assumes that deaths occurred more or less randomly throughout the population and were not correlated in any way with income and that only those with wealth bothered to leave wills, it would suggest that 1/5 to 1/3 of the population owned most of the wealth in late nineteenth century Wentworth County. This is in accord with Katz's study of Hamilton in 1851 which found that one-quarter of the population of Hamilton owned all the real property within the city and that the most affluent 10% of the population owned about 88% of the

⁶Number of adult deaths 1881 (age > 21) - 450
Number of adult deaths 1891 (age > 16) - 640
Source: Census of Canada, 1881, 1891.

real property.⁷ Therefore, studying the wealth of individuals who had their estates probated should provide much information about the wealth of the County in general.

When one looks at occupational divisions, it becomes even more apparent that many of these decedents do represent members of Wentworth County's economic elite. For example, when classified using Katz's occupational categorization,⁸ which has six categories with I having the highest level of socio-economic status,⁹ V the lowest and VI being unclassifiable, the 1872 data set was found to contain 16.0% in Category I, 50.0% in II, 12.0% in III, 2.0% in IV, 8.0% in V and 12.0% in VI. (See Table 3.2.7 for explanation of classification.) However, Census data for the County placed 3.6% of employed individuals in Category I, 38.1% in II, 22.2% in III, 5.4% in IV, 18.3% in V and 12.4% in VI. This suggests that although all socio-economic ranks are represented among the probated decedents, the emphasis in the data set is on those of high occupational standing.

It is now time to study the aggregate characteristics of the probated decedents in somewhat greater depth.

3.2 Characteristics of Probated Decedents in Wentworth County

This section will present aggregate statistics on the major characteristics of the set of 283 probated decedents with comparisons made with Census data for

⁷Katz, 1975, p. 25.

⁸Katz, 1975, pp. 343-348.

⁹Katz assigns occupations to categories on the basis of economic ranking as well as social position. Economic rank was based on the average wealth of broad occupational groups whereas status concerned whether manual or non manual labour was being performed. For a fuller description, see Michael Katz, "Occupational Classification in History," *Journal of Interdisciplinary History*, Vol.3, (1972), pp. 63-88.

Wentworth County where available. Table 3.2.1 provides some individual examples from the set of probated decedents in order to illustrate the type of information this study has made available. Some of the main characteristics of the Wentworth County probated decedents are presented in Table 3.2.2.

The majority of probated decedents were male but their proportion declined from 88.0% in 1872 to 73.0% by 1892. The decline in the proportion of males coincides with the passing of the **Married Woman's Real Estate Act, 1873**¹⁰ which allowed married women to dispose of real estate as if *feme sole*¹¹ and the **Married Woman's Property Act, 1884**¹² which enabled a married woman to dispose "by will of any real or personal property as her separate property in the same manner as if she were a *feme sole* without the intervention of any trustee."¹³ Whereas only 4.0% of the 1872 probated decedents were married women, this figure rose to 8.9% in 1882 and 9.7% in 1892. (See Table 3.2.6.)

The impact of the above two acts is also evident in the percentage of probated decedents who were female and testate. Whereas the percentage of probated decedents who were male and testate stayed approximately the same, those who were female and testate rose from 8.0% in 1872 to 22.0% in 1892. The rise in testate females undoubtedly accounts for much of the rise in testate probated decedents between 1872 and 1892.¹⁴

¹⁰ **Statutes of Ontario, 36 Vict., Cap. 18.**

¹¹ That is, as if an unmarried woman. A married woman, on the other hand, was termed a *feme covert* or 'covered woman' because her legal interests were 'covered' by those of her husband. See Shammas et al., p. 25.

¹² **Revised Statutes of Ontario, 1887, Cap. 132.**

¹³ Alfred Howell, **Probate, Administration and Guardianship, 2nd Edition** (Toronto, The Carswell Co., 1895), p.55.

¹⁴ Ontario and British North America in general lagged the United States in female property rights legislation. From about 1850 on, most U.S. states passed legislation which allowed married women ownership and control over real and personal property they had brought into the marriage. (See Shammas et al., p. 83.) The impact of these laws in the United States was also an increase in the

Testate individuals were more likely to own real estate than intestates. Males were also more likely than females to own real estate although there was a jump in real estate ownership amongst female probated decedents between 1882 and 1892.

Table 3.2.3 presents the age distribution of the set of probated decedents and for the purpose of comparison includes the age distribution of both the living and the dead of Wentworth County during the Census years. In 1872, 50% of the probated decedents were above age 60, in 1882, 48.1%, and in 1892, 58.5%.

When compared to the age distributions for the County as a whole, one can see that the probated decedents do not represent the age structure of the actual population very well. This is to be expected. The older one is, the more likely one would have accumulated some wealth and it is only people with wealth that would have their estates probated.

Table 3.2.4 examines the distribution of probated decedents according to birthplace. The share of native-born probated decedents shows a steady increase between 1872 and 1892. Of the other birthplaces, only that of United States born individuals shows a steady decline over the period 1872 to 1892. As evidenced by the Census figures, the probated decedents under-represent those who were native-born and over-represent those whose birthplace was England and Wales.

Table 3.2.5 provides information on the distribution of probated decedents according to their place of residence at the time of death. Again, in brackets is the share of population accounted for by the city or township according to the Census. In each year, the bulk of probated decedents were from Hamilton with its share rising from 36.0% in 1872 to 56.5% in 1892, paralleling the

percentage of female testators. In Bucks County, Pennsylvania, the proportion of testators who were female rose from 17% in the 1790s to 38.5% one hundred years later. (Shammas et al., p.119)

Census figures, and reflecting the increasing urbanization of the County.

Table 3.2.6 presents the distribution of probated decedents according to marital status and religious affiliation. Over the time period under consideration, married probated decedents declined as a proportion of the sample while the share of widows rose. The shares of widowers and single individuals fluctuated but by 1892 were similar to those for 1872. When compared with Census figures for the County, it is apparent that the probated decedents over-represent widowers and under-represent single people.

As for religion, Anglicans, Presbyterians and Methodists dominated while Roman Catholics made up a small but rising share of probated decedents. Relative to their Census share, Anglicans tended to be over-represented amongst the set of probated decedents whereas Roman Catholics and Methodists were the most under-represented.

Tables 3.2.7 and 3.2.8 present information on the occupational distribution of the probated decedents. Table 3.2.7 classifies the probated decedents according to the Katz Occupation Classification which is described briefly in a footnote to the table. Table 3.2.8 classifies the occupations on a more *ad hoc* basis with the categories used described in a note at the end of the table.

It would appear that over time, the proportion of probated decedents belonging to Katz's categories I and II declined while the middle category, III, became more important. The middle category appears to have increased its share at the expense of both high and low occupational status groups. These results appear to mirror those for the County as derived from the Census.

However, the probated decedents over-represent the high occupational status categories. The increase in the proportion of unclassifiable probated decedents over time is due to the increase in the number of widows and married women who were both placed in this category.

Using the more specific occupational classifications of Table 3.2.8, it can

be seen that farmers made up the single largest group but they declined from about 40.0% of probated decedents in 1872 to 22.7% in 1892. The tradesman/skilled worker category shows the greatest increase between 1872 and 1892. The decline in the proportion of farmers can be attributed to the industrialization of the economy and the relative decline of the agricultural sector.

When comparing the probated decedents with the County as a whole, it would appear that the greatest differences lie in age, birthplace and occupation. The probated decedents are far older than the population in general, contain a far greater proportion of people born in England and Wales, and a greater proportion of people of high occupational status than the County as a whole.

3.3 Patterns of Wealth Holding in Wentworth County

This section will present aggregate statistics on the terminal wealth of the set of 283 probated decedents in an effort to discern trends and patterns in wealth between 1872 and 1892. Among the statistical compilations examined are aggregate wealth, the composition of wealth, and comparisons of the wealth of various groups such as urban and rural probated decedents and farmers and non-farmers.

The real wealth figures in Table 3.3.1 are in 1900 Constant Dollars and were derived by deflating nominal wealth with the GNE Implicit Price Index.¹⁵ From the figures in Table 3.3.1, it can be seen that average total terminal wealth declined from 1872 to 1882 but rose again by 1892. A similar pattern is displayed by average real estate.

It is interesting to note that for all the average terminal wealth figures

¹⁵Source: M.C. Urquhart, "New Estimates of Gross National Product, Canada 1870-1926: Some Implications for Canadian Development," *Long-Term Factors in American Growth*, eds. S.L. Engerman and R.R. Gallman, NBER Studies in Income and Wealth, Vol. 51, (Chicago, 1986), pp.30 - 31.

in Table 3.3.1, the standard deviation is very high, reflecting the great dispersion in wealth. In the set of 1892 probated decedents, for example, individual terminal wealth ranged from as low as \$61 to as high as \$147,090.

The average value of financial assets also rose between 1882 and 1892 but the share of wealth held in financial assets declined. The average value of other personal property remained roughly the same over the period.

Real estate wealth merits further discussion. On the one hand, the percentage of probated decedents reporting real estate rose from 68.0% in 1872 to 70.9% in 1882 to 78.6% in 1892. At least amongst these probated decedents, there was an increase in the incidence of real estate ownership. (See Tables 3.2.2 and 3.3.2.)

At the same time, amongst farmers in this sample, average farm size declined from 166 acres in 1872 to 85.93 acres by 1882 and rose slightly to 89.53 acres in 1892. (See Table 3.3.4.) The share of wealth held as real estate rose for both farmers as well as non-farmers and more generally, for urban as well as rural residents. It would appear that there was an increase in the incidence of land ownership during the period under examination but it coincided with rising land values and a decline in farm size.

The reasons for these trends over time are not obvious. The decline in per capita wealth between 1872 and 1882 may be the result of business cycle fluctuations as both 1872 and 1892 occurred at the tail end of boom periods while 1882 followed a recession period.¹⁶ As for the rising share of wealth held

¹⁶From Urquhart's GNP estimates, the period 1875-1880 saw real per capita GNP grow by an average of -0.02% per annum while the period from 1885 to 1890 saw average annual growth of 0.80%. The periods 1865 to 1873 and 1886 to 1891 were 'boom' years while 1873 to 1879 was a 'bust' period and 1879 to 1886 a 'recovery' period. (See Michael J. Doucet, *Building the Victorian City: The Process of Land Development in Hamilton, Ontario 1847-1881* (Ph.D. diss., McMaster, 1977) p. 26.) A study of business cycles by Derek A. White also shows that peaks occurred in 1873, 1882, 1887, 1890 and 1893. Troughs occurred in 1879, 1885, 1888 and 1891. The contraction from 1873 to 1879 was the longest in duration with a length of 66 months. (See Derek A. White, *Business Cycles in*

in real estate, this appears odd given that the period after 1870 in Canada was one of expansion for Canadian financial intermediaries.¹⁷

Hamilton, in particular, witnessed the formation of the Bank of Hamilton (1872), the Hamilton Provident and Loan Company (1871) and the Federal Life Insurance Company (1882).¹⁸ Obviously, land remained an attractive investment for these probated decedents despite the arrival of a more sophisticated financial sector.

A possible explanation for the rise in real estate's share of wealth is that land prices rose much faster than those of other assets thereby inflating the value of real estate relative to other assets. According to Doucet, house and land prices in Hamilton rose between 1866-67 and 1881 but were cyclical, varying with the "boom and bust in the North American economy as a whole."¹⁹ Since 1892 did occur at the end of a boom period, this could have something to do with the increase in the value of real estate.²⁰

It is also possible that the purchase of land was favoured by the late nineteenth century decline in interest rates and therefore mortgage rates.

Canada, Staff Study No. 17, Economic Council of Canada, (Ottawa, Nov. 1967), p. 237.)

¹⁷E.P. Neufeld, *The Financial System of Canada: Its Growth and Development* (Toronto, MacMillan, 1972), pp.55-69.

¹⁸Weaver, 1982, p. 47.

¹⁹Doucet, 1977, pp. 284-288.

²⁰It is possible that part of the reason for the rise in wealth between 1892 and the other two periods is the superiority of the 1892 data. For 1892, there was usually a probate and an assessment roll estimate for real estate with the higher of the two being selected. A comparison of real property values using the 1892 data found that the assessment rolls tended to undervalue real property by about 23% in urban areas and 42% in rural areas. On average for the County, the assessment roll estimates undervalued real property by about 32.5%. Multiplying total real estate in Table 3.3.1 for 1872 and 1882 by 1.325 would correct the wealth estimates for these years. Total wealth figures would be: 1872- \$423,890.41; 1882- \$545,951.51 in \$1900. Per capita wealth figures taking undervaluation into account would be \$8,477.81 and \$6,910.78.

However, Weaver and Doucet note that "most people tried to avoid mortgaging their property purchases whenever possible. One analysis of almost 1,700 vacant Hamilton lots sold between 1847 and 1881 revealed that only 43% were mortgaged at the time of sale..."²¹ Nevertheless, 43% is still a substantial number.

The average number of children per probated decedent also rose during the time period under consideration. This increase is somewhat startling given that the late nineteenth century saw declining fertility in Canada.²² One should not place too much stock in this trend, however, as these children represent the outcome of decisions made twenty to thirty years previously judging from the average age at death.

The number of children per probated decedent is really the number of surviving children reported in the probate and Census records. It is possible that these figures underestimate the number of children each probated decedent had because of omissions deliberate or accidental. Adult children already out on their own would be excluded in a Census household. Moreover, they could be omitted from a will for one reason or another.

In order to ascertain the potential extent of the understatement of the number of children, household size for the set of probated decedents is compared to that for Wentworth County as a whole and Canada in Table 3.3.11. As can be seen, household size for the set of probated decedents seems to be understated for 1871 and 1881 and slightly overstated in 1891 at least relative to the country as a whole.

Another way to capture the omission of children is to compare the number of children reported between testates and intestates. Intestate decedents had

²¹Michael Doucet and John Weaver, "The North American Shelter Business, 1860-1920: A Study of a Canadian Real Estate and Property Management Agency," *Business History Review*, Vol. 58, (Summer 1977), p. 243.

²²The fertility decline is well documented in J. Henripin, *Tendances et facteurs de la fécondité au Canada* (Bureau Fédéral de la Statistique, Ottawa, 1968.)

their children tracked down by the probate process because, in granting administration over the estate, all the surviving offspring of age had to be taken into account. Individuals who were no longer residents of Wentworth County were also contacted so that they could either renounce their claim to administration or enter a caveat.²³

Since the administration of an estate was at stake, one would expect the probate papers of intestates to be more comprehensive in their reference to offspring than those of testates who designated an executor. Some testate individuals left their property to their wives for the support of 'infant children' but did not specifically enumerate those children. In such cases, the Census provided the number of children.²⁴

A comparison between the number of children reported by testates and intestates is made in Table 3.3.12. Except for 1882, there appears to be no discrepancy between the figures. From this we can conclude that the under-estimation of the number of surviving children of probated decedents is not a major problem. Use of both the probate papers and the Census records probably ensures that almost all the surviving children are accounted for.

Some detailed information on portfolio composition is presented in Tables 3.3.2 and 3.3.3. Note that between 1882 and 1892 there was an increase in the percentage of probated decedents reporting cash in bank, real estate and other property. All of the other categories experienced a decline. Declines were

²³For example, Nelson Swayz (*WC # 1766, 1882*) died intestate. His probate papers reported the existence of six children. Only two still lived in Ontario, one in Hamilton, the other in Ingersoll. The other four all lived in the United States. The probate papers contained signed statements from the four children in the U.S. renouncing title to administration of the estate.

²⁴For example, Peter Grant (*WC # 821, 1872*) had, according to the Census, 9 children. His probate papers do not mention the number of children although their presence is alluded to in his will. With respect to the house being left his wife, he writes: "my intention being that the same shall be a home and homestead for my children."

experienced mainly in those categories associated with the agricultural sector.

In terms of average amounts for each wealth category, farming implements, stock in trade, horses, horned cattle, sheep and swine, book debts and promissory notes, money secured by mortgage, cash on hand and farm produce of all kinds declined between 1882 and 1892. All of the other categories experienced a rise in the average amount per probated decedent. The greatest increases were experienced by cash in bank, real estate, securities for money and other property.

Comparisons were then made for different groupings of probated decedents. In Table 3.3.4, urban probated decedents were compared with rural ones. It can be seen that average total wealth was higher amongst urban decedents and that the urban decedents accounted for a greater share of wealth than their proportion of the population.

The decline in wealth between 1872 and 1882 appears to be primarily an urban phenomenon. Rural wealth figures experience a steady increase between 1872 and 1892. The share of wealth held in real estate was higher for rural as opposed to urban decedents and this figure increased over time for both groups. Finally, the average number of children is greater for rural probated decedents.

In Table 3.3.5, testate probated decedents were compared with intestate ones. Over time, the proportion of intestate probated decedents declined. In each of the general wealth categories -- total wealth, real estate wealth, financial assets and other personal property -- testate average figures surpassed those of the intestates. This occurred because those with a great deal of wealth would likely be more inclined to make provisions for the disposal of their property.

Testate probated decedents accounted for the lion's share of wealth which rose to 91.7% of wealth by 1892. There was, however, little difference between testates and intestates when it came to the share of wealth held in real estate.

Although whether one is testate or intestate may say something about the amount of wealth owned, it does not appear to affect the composition of the portfolio.

In Table 3.3.6, the comparison is made on the basis of gender. It can be readily seen that, on average, male probated decedents were much wealthier than females, accounted for a greater though declining share of total wealth and held a larger proportion of their wealth in the form of real estate. Both males and females came to hold a greater proportion of their wealth in the form of real estate as time went by. Females tended to hold a larger proportion than males of their wealth in the form of financial assets.

In Table 3.3.7, Protestant and Roman Catholic probated decedents are compared. The proportion of Catholics in the sample of probated decedents and their share of wealth both rose over time but, on average, Protestant probated decedents had much higher levels of wealth. In 1882 and 1892, Roman Catholics tended to hold a slightly larger proportion of their wealth than Protestants in the form of real estate. As for the number of children, Protestant probated decedents had a higher average number of children than Roman Catholic ones in both 1882 and 1892.

Occupational differences and their impact on wealth are examined in Tables 3.3.8 and 3.3.9. Table 3.3.8 compares the wealth of farmers with that of non-farmers. Table 3.3.9 compares the wealth of those of high occupational status, i.e., Katz Categories I and II, with those of low occupational status, i.e., Katz Categories III-VI.

Comparing farmers and non-farmers, one can see that the proportion of probated decedents employed as farmers declined over time. However, whereas in 1872 the farm population of 40% controlled only 26% of total wealth, by 1892, the 24% employed as farmers controlled 18.7% of total wealth. The share of wealth controlled by farmers did not decline as rapidly as the share of population employed as farmers. The wealth of farmers rose steadily over the

three years while that of non-farmers declined in 1882 and then rose again by 1892.

However, on average, non-farmers were wealthier than farmers. Whereas average real estate levels between the two groups were close (1882 excepted), non-farmers possessed much higher average amounts of financial assets and other personal property. Not surprisingly, farmers tended to hold a much higher proportion of their wealth in the form of real estate than non-farmers. In addition, farmers tended to have a much higher average number of children than non-farmers although the gap narrowed between 1872 and 1892.

The comparison between probated decedents of high and low occupational status in Table 3.3.9 also yields little in the way of surprise. As expected, probated decedents of high occupational status had higher average wealth than those of low occupational status. They also held a higher proportion of their wealth as real estate and had more children than those of low occupational status. The decline in wealth between 1872 and 1882 affected both low and high occupational status groups.

Table 3.3.10 examines the differences between native-born and foreign-born probated decedents. Foreign-born probated decedents outnumbered native-born ones in all three years although as a proportion of probated decedents they declined over time. By 1892, there was also a division of wealth between foreign and native-born that reflected their shares of the sample.

Examining the average wealth figures, one sees that foreign-born individuals were wealthier than native-born ones until 1892 when the native-born surpassed the foreign-born. In all three years, native-born decedents held a higher percentage of their wealth in the form of real estate than the foreign-born. On average, the native-born had more children than did the

foreign-born.²⁵

As a point of comparison, Lee Soltow found that the ratio of the total mean wealth of the native-born to the foreign-born in the United States was 2.3 in 1860 and 2.1 in 1870. Soltow attributes the lower wealth of the non-native-born to language barriers and illiteracy²⁶ which hindered market participation and wealth accumulation. The reversal in Wentworth County may be due to the fact that the foreign-born, being primarily from English speaking countries, faced no such barriers.

It is also possible that being foreign-born is correlated with some other attribute such as age or occupation. Soltow, for example, found that the proportion of individuals employed as farmers was greater amongst the native-born than the foreign-born.²⁷ This is also true for the Wentworth County probated decedents for 1872 and 1892 but not for 1882.²⁸ Since non-farmers tended to be wealthier than farmers, this could help explain the difference in wealth levels.

Age is another important factor in the wealth difference. As can be seen in Table 3.3.15, the foreign-born were on average a decade older than the native-born at the time of death. The only other case of such a consistent gap over the period 1872 to 1892 occurs in the testate versus intestate case. In both these comparison groups, the group with the higher average age had greater wealth.

²⁵Using measures of rural fertility constructed from a sample of farms from Canada West, 1851-52, William Marr also finds that the foreign-born did not have higher fertility than the 'Canadian' born. See Marr, 1986.

²⁶Soltow, 1975, p. 79.

²⁷Soltow, 1975, p. 16.

²⁸The proportion of farmers amongst the native-born was 81.8% in 1872, 26.3% in 1882 and 27.9% in 1892. Amongst the foreign-born it was 28.2% in 1872, 40.0% in 1882 and 21.5% in 1892.

The relationship between wealth and age merits further attention. In Table 3.3.13 are presented some characteristics of broad age groups within the sample of probated decedents. Between 1872 and 1892 the probated decedents aged as the share of those aged 39 and under declined from 24.0% to 15.6%. The share of wealth of those aged 39-and-under, however, rose from 7.62% to 12.63%.

Average wealth for all three of the age categories rose over time but the most dramatic gains were made by the those aged 39-and-under. While average wealth for those aged 40-69 rose by 11.7% between 1872 and 1892 and for those aged 70-and-over it rose 7.9%, for those aged 39-and-under, the rise was 230.9%.

In each of the three years, average wealth rises with age. Also of interest is the fact that the share of wealth held in real estate seems to decline with age except for 1882 where the decline occurs only between the 40-69 and 70-and-over age groups. This would suggest that individuals accumulated real estate early in life and later on began to diversify into other assets.

That wealth rises with age and that the average age of the foreign-born was higher than the native-born together may account for the wealth of the foreign-born being greater than the native-born. Moreover, the narrowing of the gap between average wealth levels between the native-born and the foreign-born between 1872 and 1892 is likely due to the gains in average wealth made by the 39-and-under age category.

Generally speaking, it would appear that between 1872 and 1892, foreign and native-born probated decedents became more alike in terms of average wealth levels, average number of children and portfolio composition. As an additional note, the decline in wealth between 1872 and 1882 appears to have affected the foreign-born more adversely than the native-born.

As a final piece of aggregate data, some selected data on real estate ownership amongst the set of probated decedents is presented in Table 3.3.14. Some of this material has already been alluded to in Chapter 2. From the table,

it can be seen that the percentage of farmers with real estate valued from \$1 to \$1000 and over \$5000 increased between 1872 and 1892 while the percentage with no real estate remained approximately the same and the percentage with \$1000 to \$5000 declined. In terms of farm size, the table shows a decline in large farms, that is over 100 acres, and a rise in small farms, that is 50 acres and under, between 1872 and 1892.

Amongst the total set of probated decedents, the percentage of probated decedents with more than \$1000 in real estate rose between 1872 and 1892 while the percentage of those with none declined and that of those with less than \$1000 remained constant.

These trends suggest that a diffusion of property ownership was going on amongst the probated decedents of Wentworth County, that is the proportion reporting real estate was rising. Moreover, there was an increase in the proportion of those owning more than \$1000 in real estate while the proportion owning less than \$1000 remained constant. Growth in the proportion owning less than \$1000 was greater amongst farmers. The growth in the ownership of real estate valued between \$1000 and \$5000 appears to be driven mainly by non-farmers as the proportion of farmers in this category decreased over time.

3.4 Conclusion

Having examined all of this aggregate data, what conclusions can one draw about patterns of wealth and wealth holding in late nineteenth century Wentworth County? Based on our sample of probated decedents, it would appear that per capita wealth declined between 1872 and 1882 but recovered by 1892. This decline in wealth did not affect all groups equally.

The decline in per capita wealth appears to have been borne by urban as opposed to rural probated decedents, non-farmers as opposed to farmers, males rather than females, Protestants rather than Catholics and the foreign-born

rather than the native-born. In each of these cases, it was the group with the higher proportion of its wealth held as real estate that managed to avoid a decline in per capita wealth between 1872 and 1882. The one exception occurs when the probated decedents were broken into age categories. In this case, the average wealth of those under age 39 rose between 1872 and 1882 but their share of wealth held in real estate was much lower than that of the other two age groups.

The other trends appear to be equally distributed amongst all of the comparison groups. All of the groups examined experienced an increase in average wealth between 1872 and 1892, all reported a rise in the percentage of total wealth held as real estate and all experienced a rise in the average number of children. In terms of distribution over time, wealth gravitated towards probated decedents who were urban, testate, female, Catholic, non-farmers and of low occupational status. All of these groups came to hold a higher share of wealth relative to their comparison group.

When broken down into age groups, however, it becomes apparent that the bulk of society's wealth was owned by its more established members. The average wealth of those aged 40-and-over was greater than that of those under 40. At the same time, over time, large gains in average wealth appear to have been made by the relatively young. Given that the average age of the native-born was lower than the foreign-born, the result was a shift in wealth towards a relatively young, domestic wealth holding group.

The gains in wealth made by young, native-born probated decedents are understandable, for given the rapid economic changes of the late nineteenth-century, it was they, rather than older, foreign-born individuals who were best able to take advantage of the economic opportunities industrialization afforded. The fact that the under-39 age group weathered the decline in per capita wealth between 1872 and 1882 offers some evidence in support of the young being more

adaptable to changing economic circumstances.

The ownership of real estate also displayed some interesting trends. The incidence of real estate ownership amongst the set of probated decedents increased over time but the percentage of probated decedents reporting real estate under \$1000 dollars remained constant. Amongst farmers, however, this proportion increased. Moreover, whereas amongst the total set of decedents the proportion reporting \$1001-\$5000 increased, amongst farmers it decreased. As for the proportion reporting \$5000 or more, it was much greater amongst the farmers than the non-farmers.

Though all of these aggregate statistics convey information about the general trends and patterns of wealth holding, they do so without controlling for other factors. For example, what would be the relationship between occupational status and wealth when other variables are controlled for? Wealth and urbanization appear to be positively correlated from our aggregate statistics but is this a statistically significant relationship? Obtaining answers to these questions will require the use of econometric techniques, and this is the subject of Chapter 4.

TABLE 3.2.1
INDIVIDUAL EXAMPLES FROM THE SET OF PROBATED DECEDENTS

<u>NAME</u>	<u>AGE</u>	<u>NUMBER OF CHILDREN</u>	<u>OCCUPATION</u>	<u>REAL ESTATE</u> \$	<u>FINANCIAL ASSETS</u> \$	<u>TOTALⁱ WEALTH</u> \$
William M. Chapman 1872	51	2	Under-taker	0	Not Available (N.A.)	3500
David Rintoul 1872	72	5	Farmer	2092	(N.A.)	3192
Edwin Henwood 1882	60	3	Physician	13000	600	14000
Albert Babcock 1882	29	1	Mechanic	0	11	61
Jane Beamer 1882	60	1	-	3290	1315.46	4675.46
James Jolley 1892	77	7	Saddler & Harness Maker	19920	6641	31561
William McGoogan 1892	70	0	Labourer	1680	350	2030

NOTES

ⁱ
Total wealth is the sum of real estate, financial assets and other personal property. Other personal property was not included in this table due to space restrictions.

TABLE 3.2.2
SOME SELECTED CHARACTERISTICS OF WENTWORTH COUNTY PROBATED DECEDENTS

	1872	1882	1892
(1) Percentage Male	88.0	78.0	73.0
(2) Percentage Testate	60.0	63.0	76.0
(3) Percentage of Males Who were Testate	59.0	66.0	73.0
(4) Percentage of Females Who were Testate	67.0	53.0	83.0
(5) Percentage of Probated Decedents With Real Estate	68.0	71.0	79.0
(6) Percentage of Probated Decedents With Financial Assets	-	84.0	73.0
(7) Percentage of Probated Decedents With Other Personal Property	-	84.0	79.0
(8) Percentage of Testate Probated Decedents with Real Estate	73.0	86.0	83.0
(9) Percentage of Intestate Probated Decedents with Real Estate	60.0	45.0	65.0
(10) Percentage of Males With Real Estate	73.0	63.0	86.0
(11) Percentage of Females With Real Estate	33.0	35.0	59.0
(12) Percentage of Probated Decedents Who Were Male & Testate	52.0	52.0	54.0
(13) Percentage of Probated Decedents Who Were Male & Intestate	36.0	27.0	19.0
(14) Percentage of Probated Decedents Who Were Female & Testate	8.0	11.0	22.0
(15) Percentage of Probated Decedents Who Were Female & Intestate	4.0	10.0	5.0

TABLE 3.2.3

A. AGE DISTRIBUTION OF WENTWORTH COUNTY PROBATED DECEDENTS
(%)

	1872	1882	1892
< 20 YEARS	0.0	1.3	0.0
20 - 29	6.0	2.5	3.2
30 - 39	18.0	15.2	12.3
40 - 49	12.0	12.7	12.3
50 - 59	14.0	20.3	13.6
60 - 69	24.0	17.7	28.6
≥ 70	26.0	30.4	29.9

B. AGE DISTRIBUTION OF WENTWORTH COUNTY POPULATION
(Source: Census of Canada)

	1871	1881		1891
0 - 21	52.9%	49.0	0- 19	43.6
21- 31	16.8	18.2	20- 29	19.3
31- 41	11.9	11.8	30- 39	13.3
41- 51	8.6	9.2	40- 49	9.8
51- 61	5.3	5.9	50- 59	6.8
61- 71	3.0	3.8	60- 69	4.6
71+	1.4	1.8	≥ 70	2.9

C. AGE DISTRIBUTION OF WENTWORTH COUNTY DEAD
(Source: Census of Canada)

	1871	1881		1891
0- 21	62.1%	50.1	0- 14	37.1
21-31	6.6	8.6	15-24	8.2
31-41	7.0	8.1	25-34	7.1
41-61	11.8	12.6	35-44	6.5
61-81	9.6	17.5	45-54	8.6
81-101	2.8	3.9	55-64	8.9
			65-74	11.9
			75+	11.3

TABLE 3.2.4

DISTRIBUTION OF PROBATED DECEDENTS BY PLACE OF BIRTH
(%)

	1872	1882	1892
CANADA and NFLD.	22.0 (62.7) ⁱ	24.1 (68.4)	39.6 (74.7)
UNITED STATES	6.0 (3.7)	2.5 (3.6)	1.9 (3.0)
ENGLAND and WALES	36.0 (13.1)	22.8 (11.9)	25.3 (12.0)
IRELAND	14.0 (10.6)	21.5 (7.9)	17.5 (6.2)
SCOTLAND	18.0 (7.6)	27.8 (6.2)	11.0 (5.0)
OTHER	4.0 (2.2)	1.3 (1.9)	4.5 (0.8)

NOTES

i

The figure in the brackets denotes the distribution by birthplace of the population of Wentworth County according to Census figures for the year previous.

TABLE 3.2.5

DISTRIBUTION OF PROBATED DECEDENTS BY PLACE OF RESIDENCE
(%)

	1872	1882	1892
HAMILTON	36.0% (46.4) ⁱ	44.3 (53.7)	56.5 (61.8)
DUNDAS	8.0 (5.4)	6.3 (5.5)	3.9 (4.6)
BINBROOK	2.0 (3.4)	1.3 (2.7)	1.9 (2.2)
BEVERLY	14.0 (10.1)	8.9 (7.8)	8.4 (6.1)
ANCASTER	8.0 (8.7)	7.6 (7.1)	7.1 (5.4)
E. FLAMBOROUGH	6.0 (6.8)	6.3 (5.4)	3.9 (3.5)
W. FLAMBOROUGH	4.0 (5.9)	10.1 (5.2)	8.4 (4.0)
BARTON	4.0 (5.0)	2.5 (5.3)	2.6 (6.5)
GLANFORD	3.0 (3.5)	7.6 (3.0)	2.6 (2.3)
SALTFLEET	4.0 (4.8)	5.1 (4.4)	4.5 (3.6)

NOTES

ⁱ
The figure in brackets is the corresponding Census estimate for the year previous.

TABLE 3.2.6

DISTRIBUTION OF PROBATED DECEDENTS BY MARITAL STATUS AND RELIGION
(%)

	1872	1882	1892
MARRIED	70.0% (68.3) ⁱ	67.1 (64.8)	64.9 (73.4)
WIDOW	6.0 (6.4)	10.1 (6.6)	13.6 (6.2)
WIDOWER	12.0 (2.3)	16.5 (2.3)	11.0 (2.4)
SINGLE	12.0 (23.0)	6.3 (26.3)	10.4 (18.0)
PERCENTAGE OF SAMPLE CONSISTING OF MARRIED WOMEN	4.0	8.9	9.7
PERCENTAGE OF MARRIED DECEDENTS WHO WERE WOMEN	5.7	13.2	15.0
CHURCH OF ENGLAND	34.0% (23.2)	36.7 (22.7)	26.0 (22.3)
ROMAN CATHOLIC	6.0 (15.8)	6.3 (15.5)	10.4 (14.9)
PRESBYTERIAN	26.0 (22.4)	35.4 (22.1)	20.1 (22.0)
BAPTIST	4.0 (4.0)	2.5 (4.0)	3.2 (4.8)
METHODIST	22.0 (29.6)	13.9 (30.8)	35.1 (33.1)
OTHER	8.0 (4.9)	5.1 (4.9)	5.2 (2.8)

NOTES

ⁱ

The figures in brackets denote Census distributions for the County as a whole. For marital status, the distributions for the County were done using only individuals more than or equal to 21 years of age for 1871 and 1881 and greater than or equal to 20 years in 1891.

TABLE 3.2.7

DISTRIBUTION OF WENTWORTH COUNTY PROBATED DECEDENTS ACCORDING TO
OCCUPATION: KATZ OCCUPATIONAL CLASSIFICATIONⁱ

	1872	1882	1892
(HIGH) I	16.0% (3.6) ⁱⁱ	13.9 (3.6)	7.8
II	50.0 (38.1)	57.0 (34.5)	37.0
III	12.0 (22.2)	6.3 (26.7)	24.7
IV	2.0 (5.4)	0.0 (7.3)	3.2
(LOW) V	8.0 (18.3)	5.1 (13.6)	2.6
VI	12.0 (12.4)	20.3 (14.3)	24.7

NOTES

ⁱ

The Katz Occupational Classification is a ranking of occupations from 'high' to 'low' according to socio-economic standing. Examples of occupations falling into each category are:

- I Alderman, Gentleman, Physician, Merchant
 - II Accountant, Cab Owner, Farmer, Teacher
 - III Ax maker, Blacksmith, Florist, Wagon maker
 - IV Barber, Restaurant Worker, Teamster, Weaver
 - V Labourer, Unemployed
 - VI Widow, Spinster, Chamberlain, Bank clerk
- (VI is a category of unclassifiable occupations.
I included married women without occupations here also.)

ⁱⁱ

The figures in brackets denote the Katz occupational distribution of the total employed for Wentworth County according to the Census of Canada. For the 1891 Census, only provincial totals for occupations were available.

TABLE 3.2.8

DISTRIBUTION OF PROBATED DECEDENTS ACCORDING TO SPECIFIC OCCUPATIONAL
ⁱ
CATEGORIES
(%)

	1872	1882	1892
GENTLEMAN/ESQUIRE	12.0	3.8	4.5
FARMER/YEOMAN	40.0	35.4	22.7
LABOURER/UNSKILLED	10.0	7.6	7.8
TRADESMAN/SKILLED	12.0	10.1	22.7
PROFESSIONAL	6.0	10.1	4.5
CLERICAL/ADMINISTRATIVE/ PUBLIC SERVICE	2.0	7.6	2.6
BUSINESS and COMMERCE	8.0	10.1	12.3
OTHER	10.0	15.2	22.1

NOTES

ⁱ

Classification Used

1. Gentlemen/Esquire
2. Farmers/Yeoman
3. Labourer/Unskilled e.g., factory hand, labourer, farm labourer, carter
4. Tradesman/Skilled e.g., machinist, butcher, mason, builder, printer, bookbinder, locomotive engineer
5. Professional e.g., undertaker, doctor, reverend, teacher
6. Clerical/Admin./Pub. Service e.g., fireman, court clerk, bank clerk, post office employee
7. Business and Commerce e.g., grocer, banker, shipper, commercial traveller, innkeeper,
8. Other e.g., widow, married woman

TABLE 3.3.1

SOME SELECTED AGGREGATE STATISTICS FROM THE SET OF WENTWORTH COUNTY
PROBATED DECEDENTS 1872-1892

	1872	1882	1892
(1) Number of Individuals	50	79	154
(2) Total Wealth of Sample ⁱ (1900\$)	374,624	479,042	1,496,229
(3) Average Total Wealth ⁱⁱ	7492.47 (13,949.78)	6063.82 (9553.60)	9715.77 (21079.39)
(4) Total Real Estate of Sample (1900\$)	151,589.92	205,875.01	897,932.94
(5) Average Real Estate	3031.80 (6002.61)	2606.01 (4037.39)	5830.73 (15214.03)
(6) Total Financial Assets ⁱⁱⁱ of Sample (1900\$)	-	181,870.01	422,274.00
(7) Average Financial Assets	-	2302.15 (4442.96)	2742.04 (8786.54)
(8) Total Other Personal ^{iv} Property of Sample(1900\$)	-	91,297.11	176,021.95
(9) Average Other Personal Property	-	1155.66 (3788.56)	1143.00 (5636.73)
(10) Ratio of Total Real Estate Wealth to Total Wealth	0.40	0.43	0.60
(11) Average Age At Death Of Wealth Holders	55.24 (16.44)	58.38 (17.72)	59.86 (16.73)
(12) Average Number of Children Per Wealth Holder	2.72 (2.78)	2.97 (2.41)	3.43 (2.60)
(13) Ratio of Total Financial Wealth to Total Wealth	-	0.38	0.28

Notes

i

All figures are in 1900 dollars. Real estate figures were deflated using 1871=107, 1881=108 and 1891=104. This was because the real estate estimates for 1881 and 1871 were largely obtained from assessment rolls for those years. All other property was deflated using 1872=117, 1882=113 and 1892=104. These deflators were used for all estimates in this study. Source of these deflators is: Urquhart, 1986, pp. 30-31.

ii

Standard deviations for means are in brackets below each mean.

iii

Financial assets were defined as items (7) to (13) on the inventory and valuation of property. They are: (7) Book debts and Promissory Notes, (8) Moneys Secured by Mortgage, (9) Moneys Secured by Life Insurance, (10) Bank shares and other Stocks, (11) Securities for Money, (12) Cash on Hand and (13) Cash in Bank. For 1872 there was no detailed inventory and hence no estimate of financial assets is available.

iv

The personal property estimates for 1872 are an amalgam of financial assets and other personal estate as they were recorded together in a figure termed 'personal estate and effects'. For the years 1882 and 1892, other personal property consists of items (1) to (6), (14) and (16). They are: (1) Household Goods and Furniture, (2) Farming Implements, (3) Stock in Trade, (4) Horses, (5) Horned Cattle, (6) Sheep and Swine, (14) Farm Produce of all Kinds and (16) Other Property. This last category was a catch all.

TABLE 3.3.2

WEALTH COMPOSITION: PERCENTAGE OF WENTWORTH COUNTY WEALTH HOLDERS
REPORTING SPECIFIED ASSET (1882 AND 1892)

	1882	1892
	%	%
(1) Household Goods & Furniture	75.9	68.8
(2) Farming Implements	29.1	20.8
(3) Stock in Trade	17.7	9.1
(4) Horses	36.7	27.9
(5) Horned Cattle	36.7	20.1
(6) Sheep and Swine	24.1	14.3
(7) Book Debts or Promissory Notes	43.0	27.9
(8) Money Secured by Mortgage	20.3	19.5
(9) Money Secured by Life Insurance	19.0	11.0
(10) Bank Shares and Other Stocks	8.9	7.8
(11) Securities for Money	10.1	3.9
(12) Cash on Hand	40.5	34.4
(13) Cash in Bank	26.6	42.9
(14) Farm Produce of All Kinds	24.1	15.6
(15) Real Estate	70.9	78.6
(16) Other Property	26.6	29.2

TABLE 3.3.3

TERMINAL WEALTH OF WENTWORTH COUNTY PROBATED DECEDENTS BY

CATEGORY (ALL FIGURES IN 1900\$)

(Standard deviations in brackets below means)

	1882		1892	
	Total	Average	Total	Average
(1) Household Goods and Furniture	14488.91	183.39 (388.82)	33502.40	217.55 (385.26)
(2) Farming Implements	5229.91	66.20 (145.27)	4998.92	32.46 (94.35)
(3) Stock in Trade	52202.24	660.79 (3445.35)	24289.72	157.73 (1227.48)
(4) Horses	5236.28	66.28 (123.03)	8575.64	55.69 (139.52)
(5) Horned Cattle	3599.12	45.56 (81.52)	3904.49	25.35 (74.95)
(6) Sheep and Swine	1046.90	13.25 (32.83)	1049.52	6.82 (22.87)
(7) Book Debts and Promissory Notes	34054.43	431.07 (1232.88)	64056.34	415.95 (1619.88)
(8) Money Secured By Mortgage	50618.58	640.74 (2798.17)	80121.39	520.27 (1660.88)
(9) Money Secured By Life Insurance	29154.87	369.05 (1014.69)	63762.03	414.04 (1953.20)
(10) Bank Shares and Other Stocks	25327.43	320.60 (1645.77)	73667.19	478.36 (4179.79)
(11) Securities for Money	7206.73	91.22 (408.17)	55753.21	352.03 (3887.60)
(12) Cash on Hand	18487.48	234.02 (733.01)	15606.07	101.34 (441.94)
(13) Cash in Bank	17020.50	215.45 (566.02)	69307.78	450.05 (1169.52)
(14) Farm Produce of All Kinds	5316.59	67.30 (239.42)	4350.24	28.25 (93.53)
(15) Real Estate	205875.01	2606.01 (4037.39)	897932.94	5830.73 (15214.03)
(16) Other Property	4178.15	52.89 (205.51)	95351.00	619.16 (5453.27)

TABLE 3.3.4
URBAN-RURAL COMPARISON

(Figures in 1900\$, Standard Deviations in brackets beneath means)

	1872	1882	1892
% of Probated Decedents Who were Urban	44.0	50.6	60.4
% of Probated Decedents Who were Rural	56.0	49.4	39.6
Average Urban Wealth	11483.70 (23222.93)	6591.30 (11795.76)	12148.77 (26489.00)
Average Rural Wealth	4356.51 (4239.56)	5522.82 (6629.58)	6006.44 (5832.33)
Average Urban Real Estate	3791.24 (8580.66)	2473.84 (4887.17)	7059.36 (19177.15)
Average Rural Real Estate	2435.10 (2698.88)	2741.57 (2984.75)	3957.59 (4520.03)
Avg. Urban Financial Assets	-	2460.17 (4025.12)	3541.74 (11087.21)
Avg. Rural Financial Assets	-	2140.08 (4882.36)	1522.82 (2424.52)
Avg. Urban Other Personal Property	-	2086.58 (5250.73)	1547.67 (7208.72)
Avg. Rural Other Personal Property	-	641.17 (687.91)	526.04 (836.02)
Avg. no. of Children-Urban	1.91 (2.67)	2.48 (2.17)	3.13 (2.37)
-Rural	3.36 (2.74)	3.49 (2.55)	3.89 (2.88)
Percentage of Total Wealth Held by Urban Probated Decedents	67.4	55.0	75.5
Percentage of Total Wealth Held by Rural Probated Decedents	32.6	45.0	24.5
Ratio of Real Estate Wealth to Total Wealth:			
Urban	0.33	0.38	0.58
Rural	0.56	0.50	0.66

TABLE 3.3.5
TESTATE-INTESTATE COMPARISON

(Figures in 1900\$, Standard deviations in brackets below means)

	1872	1882	1892
% of Probated Decedents Who Were Testate	60.0	63.3	76.0
% of Probated Decedents Who Were Intestate	40.0	36.7	24.0
Avg. Testate Wealth	8688.91 (14001.25)	7063.41 (10492.13)	11723.90 (23722.24)
Avg. Intestate Wealth	5697.81 (14035.38)	4340.40 (7533.04)	3365.76 (4539.92)
Avg. Testate Real Estate	3481.33 (6964.56)	3211.96 (4648.95)	7067.66 (17205.24)
Avg. Intestate Real Estate	2357.49 (4253.32)	1561.27 (2408.36)	1919.39 (5335.50)
Avg. Testate Financial Assets	-	2353.66 (3835.30)	3364.80 (9981.42)
Avg. Intestate Financial Assets	-	2213.35 (5406.95)	772.77 (1357.55)
Avg. Testate Other Personal Property	-	1497.79 (4683.56)	1291.44 (6454.27)
Avg. Intestate Other Personal Property	-	565.77 (903.49)	673.59 (2434.34)
Avg. no. of Children:			
Testate	2.73 (2.96)	3.16 (2.49)	3.49 (2.52)
Intestate	2.70 (2.56)	2.66 (2.26)	3.24 (2.86)
Percentage of Total Wealth Held By:			
Testate	69.6	73.7	91.7
Intestate	30.4	26.3	8.3
Ratio of Real Estate Wealth to Total Wealth:			
Testate	0.40	0.45	0.60
Intestate	0.41	0.36	0.57

TABLE 3.3.6
MALE-FEMALE COMPARISON

(Figures in 1900\$, Standard deviation in bracket beneath mean)

	1872	1882	1892
% of Probated Decedents Who were Male	88.0	78.5	72.7
% of Probated Decedents Who Were Female	12.0	21.5	27.3
Avg. Male Wealth	8321.91 (14689.51)	7297.74 (10417.57)	11952.26 (24254.35)
Avg. Female Wealth	1409.95 (938.00)	1563.66 (1943.09)	3751.81 (3925.11)
Avg. Male Real Estate	3391.85 (6316.10)	3184.36 (4360.68)	7352.38 (17566.08)
Avg. Female Real Estate	391.43 (719.93)	496.73 (972.16)	1772.53 (2277.37)
Avg. Male Financial Assets	-	2721.06 (4922.15)	3099.77 (10138.83)
Avg. Female Financial Assets	-	774.37 (839.18)	1788.10 (2264.87)
Avg. Male Other Personal Property	-	1392.32 (4233.88)	1500.11 (6579.49)
Avg. Female Other Personal Property	-	292.55 (502.83)	190.70 (299.79)
Percentage of Total Wealth Held By:			
Males	97.7	94.5	89.5
Females	2.3	5.5	10.5
Ratio of Real Estate Wealth To Total Wealth:			
Males	0.41	0.44	0.62
Females	0.28	0.32	0.47

TABLE 3.3.7
PROTESTANT-CATHOLIC COMPARISON

(Figures in 1900\$, Standard deviations in brackets beneath means)

	1872	1882	1892
% of Probated Decedents Who Were Catholic	6.0	6.3	10.4
% of Probated Decedents Who Were Protestant	94.0	93.7	89.6
Avg. Protestant Wealth	7915.43 (14290.51)	6391.12 (9785.41)	10106.28 (21922.22)
Avg. Catholic Wealth	866.10 (733.52)	1219.78 (980.29)	6347.61 (11377.25)
Avg. Protestant Real Estate	3225.32 (6143.56)	2740.30 (4136.20)	6032.82 (15941.59)
Avg. Catholic Real Estate	0	618.52 (604.28)	4087.74 (6020.74)
Avg. Protestant Financial Assets	-	2425.23 (4564.15)	2995.47 (9245.22)
Avg. Catholic Financial Assets	-	480.55 (568.89)	556.18 (1058.63)
Avg. Protestant Other Personal Property	-	1225.59 (3895.72)	1077.99 (5629.95)
Avg. Catholic Other Personal Property	-	120.71 (91.51)	1703.69 (5849.26)
Avg. No. of Children:			
Protestant	2.66 (2.78)	3.09 (2.42)	3.51 (2.63)
Catholic	3.67 (3.21)	1.20 (1.30)	2.69 (2.27)
Percentage of Total Wealth Held By:			
Protestants	99.3	98.7	93.2
Catholics	0.7	1.3	6.8
Ratio of Real estate to Total Wealth:			
Protestants	0.41	0.43	0.60
Catholics	0	0.51	0.64

TABLE 3.3.8

OCCUPATIONAL DIFFERENCES: FARMERS VS NON-FARMERS
(Figures in 1900\$, Standard deviations in brackets beneath means)

	1872	1882	1892
Percentage of Probated Decedents Who Were:			
Farmers	40.0	36.7	24.0
Non-Farmers	60.0	63.3	76.0
Average Wealth of Farmers	4872.14 (3857.98)	6571.57 (9808.82)	7545.34 (7649.42)
Average Wealth of Non-Farmers	9239.36 (17639.62)	5769.33 (10753.04)	10402.15 (23894.95)
Average Real Estate of Farmers	2893.70 (2612.93)	3457.06 (3063.04)	5333.97 (4950.13)
Average Real Estate of Non-Farmers	3123.86 (7509.02)	2112.41 (4461.96)	5987.83 (17250.75)
Average Financial Assets of Farmers	-	2331.62 (5476.72)	1453.58 (2640.31)
Average Financial Assets of Non-Farmers	-	2285.06 (3779.18)	3149.50 (9948.29)
Average Other Personal Property of Farmers	-	782.90 (727.92)	757.79 (997.35)
Average Other Personal Property of Non-Farmers	-	1371.86 (4721.75)	1264.82 (6444.85)
Percentage of Total Wealth Held By:			
Farmers	26.0	39.8	18.7
Non-Farmers	74.0	60.2	81.3
Avg. No. of Children of:			
Farmers	4.05	4.17	4.46
Non-Farmers	1.83	2.28	3.10
Ratio of Real Estate Wealth to Total Wealth:			
Farmers	0.59	0.53	0.71
Non-Farmers	0.34	0.37	0.58
Average Farm Size of Farmers (acres)	166.05 (140.05)	85.93 (72.16)	89.53 (67.91)
Average Value of Farm in Nominal \$ Per Acre Based on Assessment Roll Values	19.13	37.99	42.64

TABLE 3.3.9

OCCUPATIONAL DIFFERENCES: HIGH VS LOW OCCUPATIONAL STATUSⁱ
 (Figures in 1900\$, Standard deviations in brackets below means)

	1872	1882	1892
Percentage of Probated Decedents Who were OCCH:	68.0	68.4	45.5
OCCL	32.0	31.6	54.5
Average Wealth OCCH	8476.67 (14531.67)	7677.80 (10856.79)	16525.69 (29138.73)
Average Wealth OCCL	5401.05 (12815.90)	2577.63 (4220.74)	4040.84 (6444.53)
Average Real Estate OCCH	3905.67 (6900.01)	3443.84 (4539.44)	10355.07 (21510.56)
Average Real Estate OCCL	1174.83 (2747.84)	796.30 (1574.74)	2060.45 (3220.53)
Avg. Financial Assets OCCH	-	2727.67 (1383.03)	4485.87 (1288.85)
Avg. Financial Assets OCCL	-	1383.03 (2097.80)	1288.85 (2311.59)
Avg. Other Per. Property OCCH -		1506.29 (4494.42)	1684.75 (7667.27)
Avg. Other Per. Property OCCL -		398.30 (959.23)	691.54 (3040.41)
Avg. No. of Children: OCCH	3.47 (2.85)	3.52 (2.42)	3.97 (2.69)
OCCL	1.13 (1.82)	1.80 (1.94)	2.98 (2.27)
Percentage of Total Wealth Owned By:			
OCCH	76.9	86.5	77.3
OCCL	23.1	13.5	22.7
Ratio of Real Estate to Total Wealth			
OCCH	0.46	0.45	0.63
OCCL	0.22	0.31	0.51

NOTES

ⁱ

High Occupational Status(OCCH) - Katz Categories I & II

Low Occupational Status (OCCL) - Katz Categories III-VI

TABLE 3.3.10

DIFFERENCES DUE TO BIRTHPLACE: FOREIGN BORN VS NATIVE BORN

(Figures in 1900\$, Standard deviations in brackets beneath means)

	1872	1882	1892
Percentage of Probated Decedents Who were:			
Foreign-born	78.0	75.9	60.4
Native-born	22.0	24.1	39.6
Avg. Wealth of Foreign-Born	8711.55 (15548.86)	6906.02 (10277.85)	9495.23 (20418.42)
Avg. Wealth of Native-Born	3170.30 (2908.61)	3404.25 (6279.55)	10052.01 (22217.44)
Avg. Real Estate of Foreign Born	3279.81 (6680.14)	2782.56 (3466.09)	5586.39 (15040.73)
Avg. Real Estate of Native Born	2152.47 (2427.07)	2048.51 (5552.01)	6203.26 (12510.28)
Avg. Financial Assets of Foreign-Born	-	2732.63 (4978.30)	2320.82 (8295.95)
Avg. Financial Assets of Native-born	-	942.76 (1317.76)	3384.22 (9520.80)
Avg. Other Per. Prop. of Foreign-Born	-	1390.84 (4306.82)	1588.02 (7226.55)
Avg. Other Per. Prop. of Native-Born	-	412.99 (551.50)	464.53 (745.65)
Percentage of Total Wealth Accounted for by:			
Foreign-Born	90.7	86.5	59.0
Native-Born	9.3	13.5	41.0
Avg. No. of Children:			
Foreign-Born	2.13 (2.46)	2.93 (2.28)	3.40 (2.64)
Native-Born	4.82 (2.93)	3.11 (2.83)	3.48 (2.56)
Ratio of Real Estate to Total Wealth:			
Foreign-Born	0.38	0.40	0.59
Native-Born	0.68	0.60	0.62

TABLE 3.3.11

AVERAGE NUMBER OF PERSONS PER HOUSEHOLDⁱ

Year	I Wentworth County ⁱⁱ	II Canada ⁱⁱⁱ	III Probated Decedents ^{iv}
1871	5.30	-	-
1872	-	-	4.42
1881	5.15	5.3	-
1882	-	-	4.64
1891	4.96	5.3	-
1892	-	-	5.08

NOTES

ⁱ

Prior to 1951, in the census, a household referred to all persons living together in a house keeping unit regardless of blood or marriage. therefore, such a household could contain extended family or live in servants. Prior to 1921, no distinction was made between a household and a family. See **Historical Statistics of Canada, 2nd ed., F.H. Leacy, ed., Series A248-259 and Series A254-259.**

ⁱⁱ

These figures were obtained by dividing the total number of families (i.e., households) in Wentworth County into the total population of the County. Source: Census of Canada.

ⁱⁱⁱ

Source: **Historical Statistics of Canada, 2nd ed., Series A-249.**

^{iv}

This was calculated by treating each individual in the set of probated decedents as a head of household. Total population of the sample (i.e., probated decedents, plus spouses, plus children) was divided by the number of probated decedents.

TABLE 3.3.12

AVERAGE NUMBER OF CHILDREN OF TESTATE AND INTESTATE PROBATED DECEDENTS
 (Standard deviations in brackets beneath means)

	1872	1882	1892
Testate	2.73 (2.96)	3.16 (2.49)	3.49 (2.52)
Intestate	2.70 (2.56)	2.66 (2.26)	3.24 (3.24)

TABLE 3.3.13

SELECTED DATA ON WEALTH HOLDING OF PROBATED DECEDENTS BY AGE CATEGORIES

(Wealth figures in 1900\$)

1872

AGE GROUP	SAMPLE SHARE	SHARE OF WEALTH	AVERAGE WEALTH \$	STANDARD DEVIATION \$	SHARE OF WEALTH HELD AS REAL ESTATE
20-39	24.0%	7.62%	2,379.14	2,879.18	0.50
40-69	50.0%	58.11%	8,707.71	19,004.82	0.42
70+	26.0%	34.27%	9,875.49	12,445.32	0.36

1882

20-39	18.99	15.47	4,938.24	11,494.74	0.18
40-69	50.63	53.24	6,375.94	9,661.87	0.50
70+	30.38	31.30	6,247.11	7,994.65	0.43

1892

20-39	15.58	12.63	7,873.21	28,964.2	0.74
40-69	54.55	54.61	9,725.94	20,010.92	0.63
70+	29.87	32.77	10,658.55	19,330.73	0.50

TABLE 3.3.14

SELECTED REAL ESTATE OWNERSHIP FIGURES
FOR PROBATED DECEDENTS

Percentage of Farmers With Real Estate Value:	1872	1882	1892
\$0	5.0	17.3	5.5
\$1 - \$1000	5.0	6.9	13.5
\$1001 - \$5000	75.0	51.7	45.9
\$5000+	15.0	24.1	35.1
Percentage of Farmers With Acreage:			
0	5.0	17.3	5.5
1 - 10	0	6.9	10.8
11 - 49	10.0	17.2	18.9
50 - 99	35.0	24.1	35.1
100+	50.0	34.5	29.7
Percentage of Probated Decedents with Real Estate Value:			
\$0	32.0	29.1	22.0
\$1 - \$1000	14.0	12.7	14.3
\$1001 - \$5000	38.0	44.3	41.6
\$5000+	16.0	13.9	22.1

TABLE 3.3.15

AVERAGE AGE OF COMPARISON GROUPS (Years)

	1872	1882	1892
Foreign-Born	57.9	61.3	64.7
Native-Born	45.9	49.1	52.4
Urban	56.3	55.7	56.7
Rural	54.4	61.1	64.6
Testate	61.7	64.7	62.9
Intestate	45.6	47.6	50.4
Male	56.1	58.2	59.3
Female	48.8	59.0	61.3
Farmers	56.6	65.0	65.6
Non-Farmers	54.3	54.5	58.1
OCCH	58.3	59.0	61.4
OCCL	48.8	57.0	58.6
Protestant	55.3	58.6	60.6
Catholic	53.7	55.8	53.8

CHAPTER 4
DETERMINANTS OF TERMINAL WEALTH OF PROBATED DECEDENTS
IN WENTWORTH COUNTY, ONTARIO
1872 TO 1892

4.1 Model and Estimation

This chapter will present an econometric analysis of the determinants of terminal wealth held by probated decedents in Wentworth County, Ontario, Canada during the late nineteenth century. An econometric model to explain wealth could be formulated by drawing upon the body of literature dealing with the life-cycle saving hypothesis or the target-bequest hypothesis. For example, one could draw upon the micro-economic approach to household behaviour pioneered by Gary S. Becker.¹ Although this approach would yield an elegant theoretical model, the demand functions derived would be difficult to operationalize given that consumption, wage and various cost-of-children variables are not present in this data set. Moreover, such an approach can be interpreted as imposing an *a priori* structure on the results. This study employs a reduced-form econometric model with a comprehensive set of variables so that the applicability of both the life-cycle and target-bequest approaches can be

¹See Gary S. Becker, "An Economic Analysis of Fertility," *NBER Demographic Change in Developed Countries*, (Princeton, 1960); "A Theory of the Allocation of Time," *Economic Journal*, Vol. 75, (1965), pp. 493-517; Gary S. Becker and Gregg H. Lewis, "On the Interaction Between the Quantity and Quality of Children," *Journal of Political Economy*, Vol. 81, (1973), Part II, pp. 279-88. For additional background, see Marc Nerlove et al., *Household and Economy: Welfare Economics of Endogenous Fertility* (New York, Academic Press Inc., 1987); Marcel Fulop, "A Survey of the Literature on the Economic Theory of Fertility Behaviour," *American Economist*, Vol. XXI, (1977), pp. 5-13; T.W. Schultz, ed., *Economics of the Family, Marriage, Children and Human Capital*, NBER Conference Report (Chicago and London, University of Chicago Press, 1974).

explored.

The log of real terminal wealth is modelled as a linear function of socio-economic variables, including whether the probated decedent is an urban or rural resident, religion, marital status, birthplace, age, occupation, the number of children and gender. It is impossible, *a priori*, to predict what the impact of all these variables will be on the level of terminal wealth. Nevertheless, some preliminary discussion of their likely effects is in order.

Families were the basic economic units of the nineteenth century and it is within the context of the family that the relationship between terminal wealth and other variables should be considered. In the predominantly agricultural economy of the early nineteenth century, family members formed cohesive economic units with each individual contributing to the economic activity of the family. As Chad Gaffield writes of Alfred and Caledonia Townships in Eastern Ontario:²

Contemporary observations and local historical accounts agree that all men, women, and children actively contributed to the well being of both English-Canadian and French-Canadian families...

In the land settlement process, the men would clear the large trees, male adolescents would cut underbrush and small trees and young children supervised by their mothers would pile the small trees and brush into piles for 'burning off'.³ Once land had been cleared, the female head of the household organized the planting of garden vegetables such as turnips and peas while men concentrated on hay and oats. Young children very often helped by picking

²Chad Gaffield, "Canadian Families in Cultural Context: Hypotheses from the Mid-Nineteenth Century," *Historical Papers, Canadian Historical Association*, (1979), p. 56.

³Gaffield, 1979, p. 56.

blueberries and strawberries which were made into jams and jellies.⁴ Thus, all members of the family contributed to output.

As urbanization and industrialization progressed and families moved into urban environments, these economic features of the family persisted but were weakened. Whereas the farm economy lent itself to families as economic units in order to work the land, in the city it was the individual's labour that mattered. Hence, the link between production and ownership of land was broken by the factory system and the family economy was undermined.⁵

In the Montreal families studied by Bettina Bradbury, men were the primary bread winners but working class families needed more than one worker to survive the winter and as a result wives and older children often entered the labour force to supplement the family income.⁶ In Hamilton, there is the example of George T. Tuckett, tobacco manufacturer, who employed, along with some 300 adults, from 120 to 150 boys and girls near the ages of 14 to 16.⁷

Children were an important component of the labour force in the late nineteenth century and amongst working people, "until well organized unions began to push for a working wage adequate to nurture a whole family, child labour would continue to be vital to family survival."⁸ The reaction against child labour in the late nineteenth century, aside from any moral considerations, can also be seen as an attempt by workers to remove competition

⁴Gaffield, 1979, pp. 56-57.

⁵Bettina Bradbury, "The Family Economy and Work in an Industrializing City: Montreal in the 1870s," *Historical Papers, Canadian Historical Association*, (1979), p. 85.

⁶Bradbury, 1979, pp. 74-79.

⁷Greg Kealey, ed., *Canada Investigates Industrialism. The Royal Commission on the Relations of Capital and Labour 1889* (Toronto, University of Toronto Press, 1973), pp. 143-144.

⁸Bradbury, 1979, p. 85.

via legislation that would restrict the labour supply, hence raising wages.

To summarize, it would appear that in the nineteenth century, children were a very important source of labour in rural areas and an important part of the labour force in urban areas. Children in urban areas helped supplement family incomes but as time went on, children in urban areas went from being a source of income to being economic liabilities requiring food, clothing, shelter and education. The net costs of child rearing would likely be more onerous in an urban setting where children had a minimal role as 'producers' but continued to exercise their role as 'consumers'.⁹

The advent of compulsory school education in 1871 saw a rise in school attendance in Hamilton. In 1871, the proportion of school age children (ages 5-16) attending school was 67.7%, an increase of 11% over 1861.¹⁰ However,

⁹An illustration of the costs of raising children is provided by an isolated reference in the probate records. Edith Adelaide Durham (*WC # 1809 & #1821, 1882*), aged 19, died intestate. Both her husband Julius and her mother Elizabeth applied for letters of administration. One Charles Braithwaite, Edith's stepfather, writes in a statement:

"Edith Adelaide Durham...was a daughter of my wife by her first husband who died in 1865...That the said deceased was at the time of her death, and her estate still is, justly and truly indebted to me in the sum of seven hundred and eighteen dollars for expenses incurred by me in the care, maintenance, clothing, schooling and medical attendance of the said deceased."

Mr. Braithwaite files the following statement of expenses:

"expenses incurred in the care, maintenance, clothing and schooling of Edith Adalaide Durham from the year 1875 to June 1881, 312 weeks, at \$1.50 per week \$468
paid for medical attendance and medicine \$200
cash to her in sundry small sums \$50"

The sum of these expenses was 718 dollars which suggests that the average annual expense of rearing an adolescent female child was about 120 dollars *per annum*. This is a major sum considering that a labourer such as a moulder could expect to earn about 400 dollars *per annum* in the 1880s. However, Mr. Braithwaite may have overstated his child care expenses given that the control over an estate of 1115 dollars was at stake.

¹⁰Ian Davey, *Educational Reform and the Working Class: School Attendance in Hamilton Ontario, 1851-1891* (Ph.D. diss., Toronto, 1975), p. 180.

school attendance was irregular, particularly amongst teen-aged children. Given the insecurity of working class life, children were used to supplement family incomes with their labour. Labourers sent the smallest proportion of their children to school relative to merchants, professionals and skilled workers.¹¹

We must now return to our original question -- the relationship between terminal wealth and the assorted socio-economic variables. First, variables such as age and occupation can serve as proxies for income. One would expect that a longer life span would entail a longer working life and hence a higher lifetime income. This would enable an individual to accumulate a greater stock of wealth.

Occupations such as lawyer, doctor and merchant in the nineteenth century, as today, yielded higher incomes than common labour. One would expect to see individuals in such high-earning occupations have higher levels of terminal wealth than individuals in low-earning occupations. At the same time, one must keep in mind that whatever the occupation, this data set is biased towards those who had wealth to impart in the first place.

Urbanization would likely have a positive effect on the level of terminal wealth. Urban areas were concentrations of commerce and industry and on average one would expect to see higher levels of wealth there. As for gender, males were the primary bread winners and tended to own most of the property. On average, one would expect males to have more accumulated wealth than females.

Being married would likely have a positive effect on the level of terminal wealth especially in rural areas. Marriage created families and heirs and families worked together to promote their collective economic well being. Marjorie Griffin Cohen has argued that women's non-market labour was directly

¹¹Davey, 1975, p. 91.

related to the process of capital accumulation in the pre-industrial period.¹² Women provided unpaid labour on the land which 'freed' men for participation in market wage-earning opportunities.¹³

The wife would rear children during their early non-productive years while the husband devoted himself to earning income. Later on, the wife would organize and supervise the economic contribution of the children as well as contribute directly to family production. As the children grew older, their economic contribution in the form of labour supply would also grow.

The relationship between the number of children and terminal wealth is somewhat more ambiguous. Terminal wealth and children could both be considered goods in the head of household's utility function. They could be substitutes or complements.

In the presence of a bequest motive, children and terminal wealth would be jointly consumed goods and therefore there would be a positive relationship between terminal wealth and the number of children.¹⁴ Where children were a source of labour, they would also help increase terminal wealth by raising

¹²Marjorie G. Cohen, *Women's Work, Markets and Economic Development in Nineteenth Century Ontario* (Toronto, University of Toronto Press, 1988), p. 12.

¹³Cohen, 1988, p. 38.

¹⁴This of course assumes that in providing bequests, all children are treated equally and there is an accepted 'minimum' bequest. If primogeniture prevailed one would not necessarily see a positive relationship between terminal wealth and the number of children.

In Peel County, Upper Canada, the latter half of the nineteenth century saw movement towards equality of treatment of heirs. See Gagan, 1981. According to Gagan, impartible settlements (i.e., one principal heir favoured to the exclusion of all other claimants) only accounted for about 20% of all the Peel County estates probated by the Surrogate Court between 1840 and 1890. See Gagan, 1976, p. 129.

An examination of the pattern of estate settlements amongst the final set of 283 probated decedents revealed that of those who were testate and had children, 16.7% could be classified as impartible, 53.1% were partible (i.e., more or less equitable distribution of estate) and 13.6% impartible-partible (i.e., one or two heirs favoured who in turn compensated the other offspring). The remaining 16.6% could not be classified. They included cases where all was left to the wife without reference to the children or where two or three children were favoured but there was no evidence of compensation to others.

family output although their contribution would be at least partially offset by child-rearing costs. One would expect the positive relationship between children and terminal wealth attributable to the labour supply of children to be strongest amongst farmers as children would be of more value in a rural setting.

Ultimately, the relationship between terminal wealth and the set of socio-economic variables must be resolved empirically. The preceding discussion leads not to a set of hypotheses to be tested but generates a sampler of the possible ways these socio-economic variables may have affected terminal wealth. Later sections of this paper will interpret the econometric results in light of the life-cycle and target-bequest hypotheses.

The econometric technique employed was ordinary least squares and the estimations were made using Time Series Processor Version 4.0. An overall regression equation was estimated which regressed the log of real wealth on all of the available socio-economic variables. The variables used and their definitions are presented in Table 4.1.1 for reference. The data set yielded a total of 34 independent variables (35 if number of children is treated as an independent variable).

The results of the overall regression equation are presented in Table 4.1.2. Note that there are two equations presented, one with children as an independent variable and one without. This is because the number of children can be treated as either exogenous or endogenous and, therefore, both treatments should be considered. On the one hand, one can argue that the number of children was a choice variable. Alternatively, one can argue that because of the absence of adequate fertility control measures, bearing children was an uncontrolled event to which economic agents could only respond in other aspects of their life such as wealth holding.

A comment should be made about the specification used for age. In an effort to discern the relationship between wealth and age, the wealth variable LWELT

was regressed on all the variables except age and the residuals (WELR) were plotted against the residuals of the regression of age on all variables except wealth (AGER) as shown in Figure 4.1.1. From the graph it can be seen that when all the other variables are controlled for, there is no immediately evident relationship between wealth and age.¹⁵

There appears to be a positive relationship between the two variables but there is a great deal of variation. There seems to be no *a priori* reason, save for the slight rounding of the contours of the plot, to favour an age, age-squared specification over any other. Experiments were conducted adding a 3rd-order and 4th-order term for age as well as a set of dummy variables for the various age brackets (e.g., 0-29, 30-39) but none of these terms were significant at the 5% level.

In addition, a Box-Cox Procedure to determine specification of the wealth-age relationship was performed for various power transformations of age. Each wealth observation was divided by the geometric mean of wealth and the resulting variable regressed on the various power transformations. Identical residual variances for each of the specifications were obtained and therefore none of the specifications could be judged superior. In the end, the quadratic age specification was selected because of the significance of its results vis a vis the other approaches.

From the results in Table 4.1.2, it appeared that birthplace, religion, seasonal and farm variables were the least significant in accounting for the level of terminal wealth. Accordingly, subsequent regressions were run which

¹⁵ An additional test was performed in which once again, the log of real wealth was regressed on all the variables except AGE and AGESQ but this time the residuals were organized into age categories (i.e., 0-29, 30-39, 40-49, 50-59, 60-69, 70-79 and 80+) and the median taken. The relationship between the median values of the residuals and the age categories was examined and again there was no evidence in support of a hump-shaped profile. The median values rose from age bracket 0-29 and peaked at 40-49, declined in the 50-59 bracket and then rose steadily afterward.

dropped each set of variables and conducted F-tests to determine whether the coefficients of the omitted variables were significantly different from zero. In each case they were not and they were eliminated until the final specification in Table 4.1.3 was arrived at. Again, child and no-child variants are presented.

The results from equation I, Table 4.1.3, indicate that the most important variables in determining the level of real terminal wealth are age, occupational status and the year dummy variable YEAR92. Wealth varies positively with age and negatively with age-squared, positively with higher occupational status and is higher in 1892 than 1872 or 1882.

With respect to time, only the 1892 year dummy variable is significant, suggesting that between 1882 and 1872 there was no significant change in wealth over time. Wealth is positively related to both gender and urbanization but these variables are insignificant.

The effect of the inclusion of children as an independent variable is illustrated in equation II, Table 4.1.3. There is a positive relationship between wealth and the number of children and the relationship is significant. Overall, both regressions are significant as evidenced by the F-statistic and account for about 30% of the variation in the dependent variable.¹⁶

In Table 4.1.3A, the results of additional significance tests are presented. F-ratios are calculated for selected groups of independent variables in the final model. From this table, it is apparent that the age, occupational and child variables are significant in determining the level of real wealth.

These results are not surprising. One would naturally expect wealth to rise with age as longer life spans are associated with longer periods of

¹⁶The final model was checked for heteroscedasticity by running the White test. The log of the residuals squared was regressed on the variables in the model. None of the coefficients were significant.

productive activity and hence higher lifetime income. Also, one would expect that people in 'high' occupational categories such as medicine or business or law would have larger incomes than labourers, again allowing for greater wealth accumulation.

It is appropriate at this point to consider the possibility that age at death and occupation could be related. It is possible, for example, that individuals of high occupational status had longer lives.¹⁷ In Table 4.1.4, it can be seen that in 1881, the occupations having the highest average age at death contained more occupations of very high status (i.e., Category I) than those having the lowest average age at death.

To see if there was any relationship between age and occupational status amongst this set of probated decedents, the age variable was regressed on a constant, the urbanization and sex variables, the year dummies, the marital status dummies and a dummy variable OCCH which took on a value of 1 if the probated decedent was of 'high' occupational status, that is, Katz occupational categories I or II, and zero otherwise.

The results are presented in Table 4.1.5. They show that there is indeed a positive and significant relationship between occupational status and age at death even when controlling for such factors as marital status, urbanization and lengthening of lifespan over time.

Returning to the wealth equations, the above results are similar to Canadian results reported by F.K. Siddiq in his study of Nova Scotia wealth holders in 1871. Siddiq regresses the log of wealth on the log of age,

¹⁷Kitagawa and Hauser have shown for the United States that there is indeed an inverse relationship between mortality and occupational status. Generally speaking, professionals were found to have much lower mortality rates than labourers. See E.M. Kitagawa and P.M. Hauser, **Differential Mortality in the United States: A Study in Socioeconomic Epidemiology** (Cambridge, Harvard University Press, 1973), pp. 34-46.

occupational dummies and a regional dummy. The occupational dummy for the merchant category is positive and highly significant while that for farmers, like the dummy in our preliminary regression in Table III, is insignificant.¹⁸

Estimates of the final equation arrived at in Table 4.1.3 were also made separately for each year and the results are presented in Table 4.1.6. Only the results from the equation including children are presented in Table 4.1.6. (See 4.1.7 for the no-child equation results)

It is evident from Table 4.1.6 that the results from 1892 best match those from when the model is estimated over the entire sample. The results for 1872 and 1882 tend to be insignificant for all the variables except for the constant. Yet, the adjusted R^2 is about the same for all three years. The results for the no-child case in Table 4.1.7 are similar.

This suggests that when the data are broken up separately into years, multicollinearity becomes a problem.¹⁹ Running the model on the data for all three years resolves the multicollinearity problem by increasing the sample

¹⁸Siddiq, 1987b, p. 31. Siddiq's wealth holders are also derived from probate sources. Siddiq uses net worth as his wealth measure which is total wealth minus total debts. Given the nature of the probate data, the measure of wealth used in this study also corresponds to net worth.

Siddiq's regression is as follows: (T-statistics in brackets)

$$\text{LnNW} = 5.255 + .538\text{LnAGE} + 2.047\text{D1} - .160\text{D2} + .285\text{D3}$$

(5.11) (2.13) (6.62) (-0.91) (1.57)

$$n=233 \quad R^2 = 0.1923$$

Where LnNW is the log of net worth

LnAGE is the log of age

D1=1 if merchant, 0 otherwise

D2=1 if farmer, 0 otherwise

D3=1 if from Halifax, 0 otherwise

¹⁹Klein's rule of thumb says that multicollinearity is a problem if the correlation coefficient r^2 between two independent variables in a regression is greater than or equal to the R^2 for that regression. When the model was run by year, r^2 was greater than R^2 18 times for 1872, 11 times for 1882 and 8 times for 1892. For each equation, there were a total of 78 partial correlations amongst the independent variables. This suggests that multicollinearity becomes less of a problem as the size of the sample is increased.

size.

Among some of the differences between the three years with respect to individual coefficient estimates are the sign and significance of the occupational status variables in 1872 and the decline in the significance of the gender variable SEX over the course of the three time periods. It is difficult, however, to draw any conclusions from these results.

The negative coefficient on OCC1 in 1872 is due to the impact of individuals who were classified as gentlemen, hence Katz Category I, but had low wealth relative to other Category I individuals.²⁰ In 1872, 12% of the probated decedents were classified as gentlemen whereas only 3.8% were in 1882 and 4.5% in 1892. When the top 10% of probated decedents are eliminated from the run, the coefficient on OCC1 in 1872 becomes positive and significant.²¹

The econometric model accounts for a substantial amount of the variation in terminal wealth amongst probated decedents in Wentworth County. In the next section the model is used to embark on a more detailed investigation, including an examination of the determinants of terminal wealth from the perspective of

²⁰The negative coefficient on OCC1 in 1872 may also be due to the choice of reference group amongst the occupational classification variables. When OCC5 is the reference group, OCC1 has a positive and significant coefficient in 1872.

²¹The final model was studied for sensitivity to outliers by conducting runs in which the bottom 10% of each year, the top 10% and both the top and bottom 10% were omitted. Some of the results of these runs should be mentioned with regards to the final model.

When the bottom 10% are omitted, SEX is positive and significant at the 5% level in the child and no-child versions. AGESQ is negative and insignificant in the with-child version but is significant in the no-child version. YEAR92 is positive and significant in both the with-child and no-child versions. OCC1 is positive but insignificant.

When the top 10% are omitted, SEX is insignificant in both the child and no-child versions. CHILD is positive but insignificant. AGE and AGESQ are the same sign as in the final model and are significant in both versions. YEAR92 is significant in the no-child version but not the with-child version. The KATZ occupational variables mirror the final model.

When the top and bottom 10% are omitted, the AGE, AGESQ results are the same as the final model, OCC1 is positive but insignificant and CHILD is positive but not significant.

whether they are consistent with either life-cycle or target-bequest saving behaviour.²²

4.2 Saving Behaviour and the Life-Cycle Transition Hypothesis

At this point it would be of interest to consider the results in light of recent work in the United States regarding what has been termed the 'Life-Cycle Transition.' Roger Ransom and Richard Sutch²³ have argued that the nineteenth century was the period when America made the transition from target-bequest to life-cycle saving, that is, when the motive for holding wealth shifted from a desire to preserve the value of the family farm in order to provide an inheritance for offspring in return for old age support, to the desire to amass a stock of liquid assets to finance old age consumption independent of offspring.

Ransom and Sutch argue that during the target-bequest era, children served as old age security assets. There was an implicit contract between parents and children in which children would support their parents in old age in return for an inheritance. During the course of the nineteenth century, however, the opening of western lands beyond the Appalachians and the rise of urban

²²It should also be noted that the overall model of Table 4.1.3 was also run separately for males and females. The regression run for females (n=65) only yielded the constant as significant. For males (n=218), the results paralleled that of the final model in terms of sign but significance was lower. CHILD was positive but insignificant at the 5% level with a t-statistic of 1.888841. AGE was positive and significant but AGESQ was negative and insignificant with a t-statistic value of -1.544487. The Katz occupational status variables acquired larger and more significant coefficients. For example, the coefficient on OCC1 was 2.435964 with a t-statistic value of 5.814687. The insignificance of the results for the females alone is not that surprising for in the late nineteenth century, their market participation as well as their property rights were not as developed as males.

²³Ransom and Sutch, 1986a and "Did Rising Out-Migration Cause Fertility to Decline in Antebellum New England? A Life-cycle Perspective on Old Age Security Motives, Child Default, and Farm-Family Fertility," CIT Social Science Working Paper No. 610, April, 1986b.

employment opportunities in manufacturing resulted in the rise of opportunities that were more attractive to children than fulfillment of the implicit contract.

The result was 'child default' as children reneged on their implicit obligation. The effect of child default was a demand by parents for a new method of accumulating for old age security: life-cycle saving, in which parents relied on the market for their old age security by accumulating assets during their working life and then running them down in old age in order to finance consumption.

According to Ransom and Sutch, if the Life-Cycle Transition had been made by the end of the nineteenth century, then there should be some evidence of life-cycle accumulation on the part of working class families. Ransom and Sutch present survey evidence from labour force surveys of industrial workers in Michigan and Maine during the years 1889 and 1890 that suggests workers between the ages of 20-30 saved 14%-16% of their income excluding saving in the form of home ownership. This was a substantial amount of saving and occurred at a point where earning power was at its peak. There was a substantial decline in the saving rates of workers in their forties creating a hump-shaped saving-age profile indicative of life-cycle saving.²⁴

The assets commonly held by working class families included homes, life insurance, membership in a fraternal benefit society, and bank accounts. There was a higher rate of bank account ownership for younger workers than older ones. In addition, the incidence of home ownership rose with age suggesting that young workers saved in banks until they had accumulated enough to purchase a home.²⁵

If one accepts the Ransom and Sutch view, then the late nineteenth century rise in saving and decline in fertility which occurred in the United States was

²⁴Ransom and Sutch, 1986a, pp. 45-46.

²⁵Ransom and Sutch, 1986a, p. 45.

the result of a Life-Cycle Transition as individuals substituted "bank accounts for babies".²⁶ As Paul Johnson notes, though it is impossible to test "this theory of 'Life-Cycle Transition' in any detail because of the lack of representative data on personal savings behaviour for mid-nineteenth century America" it is clear that the theory implies "falling fertility and rising financial accumulation over the course of the century."²⁷

This set of micro-data does not include data on personal saving but on wealth. Wealth, however, is a reasonable substitute for saving because wealth, a stock, is the outcome of a flow of net saving over time and hence reflects motives for saving. It would be interesting to see if any evidence can be found to support the existence of a Life-Cycle Transition in late nineteenth century Wentworth County.

The notion of life-cycle saving implies that economic agents expect to experience a period in their lives in which they will not work but will consume by drawing upon accumulated assets -- a period of retirement. Retirement was by no means unheard of during the nineteenth century. The term 'gentleman' often denoted someone of means who was no longer actively involved in his occupation. Some 12% of the probated decedents in this sample were listed as gentlemen in 1872, 3.8% in 1882, and 4.5% in 1892.

The concept of retirement was not limited solely to the relatively well off. According to the testimony of one William Collins, an Engineer and Machinist from Burlington, Ontario, given at the Royal Commission on the Relations of Capital and Labour in Canada, in 1888, he had been retired for 15

²⁶Johnson, 1987, p.5.

²⁷Johnson, 1987, p.5.

years.²⁸ In response to a question of whether during his working life he had been able to accumulate enough to retire on, Collins responded:²⁹

I had acquired what I considered a sufficient competency, and then retired at the age of fifty years. It had been my purpose for years if I was blessed with health and strength to cease at that from active work, and I rigidly carried out my purpose, for which I am thankful to-day, fifteen years having elapsed since it was done. I retired in the full vigour of all my faculties.

William Collins was able to do this on the fairly standard labouring fare of \$1.50 to \$2.00 a day. However, Mr. Collins had no children.

In addressing the issues of saving behaviour, the following relationships are examined: first, whether there is any evidence of decumulation during old age amongst probated decedents (i.e., a hump-shaped wealth-age profile); second, the nature of the relationship between wealth and the number of surviving children; third, the relationship between specific asset groupings (e.g., financial asset and real estate holdings) and children to specifically test the Life-Cycle Transition hypothesis advanced by Ransom and Sutch.

The case for the existence of life-cycle saving looks promising given that the econometric results reveal the existence of a concave wealth-age profile with significant coefficients. If the bequest motive were predominant, one would expect to see a positively sloped wealth-age profile. Nevertheless, the concave profile does not necessarily support the case for life-cycle saving.

The life-cycle hypothesis is based on the notion that each individual plans consumption and saving over time in a manner that takes their lifetime

²⁸Report of the Royal Commission on the Relations of Capital and Labour in Canada, vol.II, 1889, p. 825.

²⁹Royal Commission on the Relations of Capital and Labour in Canada, p. 825.

productivity into account as well as their consumption requirements.³⁰ It postulates that an individual seeks to smooth consumption over his/her lifetime. During youth, the individual will borrow to finance consumption. In middle age, as earnings increase, the individual pays off early debts and accumulates a stock of liquid assets that will be used to finance consumption during the subsequent retirement period.³¹ In old age, the individual decumulates and given perfect knowledge regarding his date of death would die with zero wealth.

Using the TEST Command function in SHAZAM Version 5.0 the estimated equations in Table 4.1.3 were solved for the age at which wealth was maximized. For the no-child version, the value was 72.827 years with a standard error of 7.6260 years and for the with-child version, 73.211 years with a standard error of 8.3458 years. Given the standard errors, it is plausible that the age at which wealth was maximized could vary anywhere from 64.8625 years to 81.5368 years.³² Decumulation would follow after peak wealth.

The size of the coefficient on AGESQ shows that the rate of decumulation after peak wealth is quite low. A possibility is that there was life-cycle saving behaviour but the reason wealth declines at a low rate after its peak is because of the impact of uncertain lifetime on individual decision making. Jim

³⁰The life-cycle model of saving was developed largely by Franco Modigliani along with R. Brumberg. See Franco Modigliani and R. Brumberg, "The 'Life Cycle' Hypothesis of Saving: Aggregate Implications and Tests," *American Economic Review*, Vol. 53, (1963), pp. 55-84; A. B. Atkinson and J. E. Stiglitz, *Lectures on Public Economics* (New York, McGraw-Hill, 1980), pp. 73-90; Modigliani, 1988, pp. 15-40 and King, 1985.

³¹It is somewhat ironic that Ransom and Sutch are advocating that economic agents during the nineteenth century made a transition to life-cycle saving at a time when the life-cycle model itself is under attack as an adequate portrayal of saving behaviour. The issue is whether wealth is accumulated for inter-generational transfers or for retirement purposes. Along with references in the previous note, see also Kotlikoff, 1988, pp. 41-58 and Kessler and Masson, 1989.

³²The 95% confidence interval was 72.827 ± 0.8897 for the no-child version and 73.211 ± 0.4961 for the with-child version.

Davies has shown that the life-cycle model without a bequest motive can account for observed saving behaviour when uncertain lifetime is taken into account.³³

As an added note, given the results in Tables 4.1.6 and 4.1.7, one could be tempted to say that the increased significance of the coefficients AGE and AGESQ over the three time periods is evidence that life-cycle saving behaviour was developing. Moreover, the significance of the YEAR92 dummy shows wealth accumulation over time and this could be the result of the increased saving for life-cycle purposes during the Life-Cycle Transition.

The arguments against this line of reasoning are two-fold. First, as previously mentioned, the insignificance of the coefficients of the age variables in 1872 and 1882 is likely due to multicollinearity. Second, although the significance of the year dummy for 1892 means that there was a significant increase in wealth over time, this could easily have been the result of economic growth. It would be difficult to separate the increase in wealth due to increased accumulation under life-cycle saving and that due to simple macro-economic considerations.

The existence of life-cycle saving would also be supported if there was wealth accumulation accompanied by declining fertility. The nature of this micro-data set (i.e., predominantly male) is such that no meaningful measure of fertility can be calculated, but the number of living children per wealth holder can serve as a proxy for fertility. From Table 4.1.3, equation II one can see that the relationship between wealth and children is positive and significant. This positive relationship between wealth and children can be taken as support for the existence of a bequest motive.

One could argue that the above results are inappropriate tests of whether

³³Davies, 1981. See also A.L. Robb and J.B. Burbidge, "Consumption, Income and Retirement," *Canadian Journal of Economics*, Vol. XXII, (1989), pp. 522-542. Robb and Burbidge show that an uncertain lifetime model, combined with a bequest motive can account for the absence of dissaving behaviour in empirical results.

or not there was life-cycle or bequest saving behaviour. The key relationship as mentioned by Johnson and by Ransom and Sutch is between the accumulation of financial assets and fertility. In the absence of fertility data, the closest approximation would necessitate an examination of the relationship between financial assets and the number of children per probated decedent in the data set.

In some ways, this is a 'true' test of the Life-Cycle Transition hypothesis. The empirical tests performed by Ransom and Sutch have relied not on individual micro-data but on cross-sectional data for U.S. states. Although fertility measures are available, no asset or saving data is available and Ransom and Sutch are forced to rely upon proxy variables. They regress fertility on variables which are considered to accompany the transition to life-cycle saving. These include the rate of growth of rural population, the ratio of non-agricultural to agricultural employment, wages and the school enrollment ratio.³⁴

Sundstrom and David regress fertility measures on variables representing the rise of alternative opportunities which purportedly capture the effect of child default on fertility.³⁵ Though significant results are achieved, these tests are all indirect. None of them consider the direct relationship between financial assets and fertility.

The target-bequest motive was rooted in the agricultural nature of the pre-industrial economy. The fundamental factor of production in an agricultural economy was land and the amount of land an individual held came to be a measure of wealth and status. As James Henretta writes of the American Colonial family:

³⁴Ransom and Sutch, 1986b.

³⁵Sundstrom and David, 1988.

"... the basic question of power and authority within the family hinged primarily on legal control over the land and indirectly - over the labour needed to work it."³⁶ Similarly, in Peel County Upper Canada, it was the ownership of real property that was one of the most suitable measures of economic and social distinction.³⁷

Children in colonial North America were one means by which the land could be made to yield a return. This economic dependence on family labour provided parents with the "incentive to employ the promise of an inheritance as a control device to extract labour from their children and to ensure that their children would care for them in old age."³⁸ Moreover, rational parents would also have an incentive to rear large broods realizing that having a large number of children competing for attention would strengthen their bargaining position with regards to any one of them.³⁹

The probated decedents of Wentworth County also manifested this characteristic. Phillip Gage (*WC # 3369, 1892*), a farmer, bequeathed all of his real and personal estate to his widow Mary Ann for the maintenance of herself and the children. However, he explicitly stated that:

no child shall be entitled to such maintenance who refuses to reside with his or her mother on the Homestead farm and render such service as he or she may be capable of in the work of the house and cultivation of the land.

Payment of an inheritance after the death of his widow stipulated that the

³⁶James Henretta, "Families and Farms: Mentalité in Pre-Industrial America," *William and Mary Quarterly*, Vol. 35, (1978), p.21.

³⁷David Gagan, 1981, p. 99.

³⁸Ransom and Sutch, 1986a, p.18.

³⁹Sundstrom and David, 1988, pp. 164-197. See also B.D. Bernheim, A. Schliefer and L.H. Summers, "The Strategic Bequest Motive," *Journal of Political Economy*, Vol. 93, (1985), pp. 1045-1076, for a discussion of the strategic bequest motive.

children have complied with the widow's interests.

In such an economy, economically dependent on land and children, one would expect to see a positive relationship between the physical amount of land held by an individual and their number of children. During the course of the transition to life-cycle behaviour, one would expect to see a substitution of financial assets for children and hence there would be a negative relationship between these two variables.

An empirical test can be performed by taking out the real estate and financial asset components of total wealth and regressing them separately on the 'with-child' variant of the final model in Table 4.1.3.⁴⁰ These results are presented in Table 4.2.1. It should be noted that the method of estimation used was Tobit because both real estate and financial assets are limited dependent variables.⁴¹

From Table 4.2.1, one can see that after controlling for the effect of other variables, there is indeed a positive and significant relationship between the value of real estate owned by probated decedents and the number of children they have. On the other hand, the relationship between financial assets and the number of children is neither negative nor significant.

However, the relationship between being an urban resident and holding

⁴⁰Real estate is item number (15) in the probate inventory and valuation of property. Financial assets are intangible assets representing claims on goods rather than goods themselves and hence was defined as the sum of items (7) through (13).

⁴¹A limited dependent variable is one which can assume a limiting upper or lower value for a substantial number of observations and for the remainder take on a wide range of values above or below the limiting value. (E.g., in our case, a large number of wealth holders have zero real estate and the rest some positive amount.) In such situations, ordinary least squares will result in biased and inconsistent estimates of the coefficients. Instead, the parameters of the Tobit model are estimated by forming and maximizing a particular log-likelihood function. For further information, see James Tobin, "Estimation of Relationships for Limited Dependent Variables," *Econometrica*, Vol. 26, (1958), pp. 24-36 and G.C. Judge et al., *Introduction to the Theory and Practice of Econometrics* (New York, Wiley and Sons, 1982), pp. 526-528.

financial assets is significant. Although one would expect the Life-Cycle Transition to be more pronounced in an urban environment it is also true that financial institutions were concentrated in urban areas and it therefore would be more convenient for urban dwellers to hold financial assets. In the absence of a significant negative relationship between children and financial assets the significant urban variable cannot be taken as evidence of life-cycle saving.

In addition, from the time trend variables, it is apparent that between 1872 and 1892, there was a significant rise in the value of real estate holdings, but there was no significant rise in the value of financial asset holdings. These results are consistent with the target-bequest motive for saving as described by the proponents of the Life Cycle Transition but not with the case for the existence of life-cycle saving.⁴²

4.3 Farmers vs non Farmers

Implicit in the discussion of the previous section is the argument that the bequest motive would be stronger amongst farmers who relied on the land for their livelihood. Non-farmers, most of whom were urban residents, lived in an environment where children could be less relied upon for old age security. As a result, one would expect to see more pronounced life-cycle saving behaviour amongst them.

In order to examine the differences between farmers and non-farmers, the final model arrived at in Table 4.1.3 was estimated separately for farmers and non-farmers. Estimates for the with-child variant of the model are presented

⁴²Tobit estimations were also attempted for separate years. For 1872, the relationship between RLAND and URB was positive and significant while all the other variables were insignificant. CHILD was positive and close with a t-statistic of 1.7004. For 1882, no results were obtained as the matrix was not positive definite. For 1892, the relationship between RLAND and OCC1 was positive and significant and that with CHILD was positive and significant. As for RFIN, only the relationship with OCC1 was significant and it was positive. The relationship between RFIN and CHILD was positive and insignificant. All significances were at the 5% level.

in Table 4.3.1.

It should be mentioned that the occupational classification variables became irrelevant in the case of the farmers-only sample and therefore were omitted. The marital status variable for widows was also omitted in the farmer equation because the sample contained only one female farmer who was also a widow and hence the sex variable is a unique event dummy. In order to allow for comparisons, two versions of the non-farmer equation are presented -- one corresponding to the specification of the farmer equation and one corresponding to the basic model of Table 4.1.3.

As can be seen from the F-statistics, the regression as a whole is insignificant at the 5% level for farmers whereas it is significant for non-farmers in both specifications. For the farmers, only the constant is significant whereas the results for non-farmers parallel those of the original overall result.

Can these differences be taken as evidence that non-farmers had made the transition to life-cycle saving whereas farmers were still behaving according to the target-bequest hypothesis? The relationship between the number of children and wealth for farmers has the wrong sign and is insignificant. In fact, it is the non-farmers who illustrate a positive and significant relationship between children and wealth as well as a concave wealth-age profile. If anything, one could argue that non-farmers were both life-cycle and bequest savers.

Pursuing the investigation further, real estate and financial asset equations were also estimated separately for farmers and non-farmers, and the results are presented in Tables 4.3.2 and 4.3.3. From the real estate equations, it can be seen that the year dummy for 1892 and whether or not a farmer is married are significant in determining the level of real estate wealth.

The importance of being married to the real estate holdings of farmers is

in keeping with the notion of the farm family as an economic as well as social unit. The decision to marry signaled the formation of a farm production unit. Note that amongst non-farmers, where families were not necessarily production units, marital status is of no significance in determining the level of real estate wealth.⁴³

Amongst the non-farmers, the level of real estate wealth is significantly and positively related to urbanization, the 1892 year variable and the number of children. Amongst the farmers, on the other hand, there was no significant relationship between real estate holdings and the number of children.

As for the financial asset equations, there are no significant variables for either the farmers or the non-farmers. Whereas some support for the bequest motive can be found in the real estate equation, there is no support for life-cycle saving in this financial asset equation. The only evidence that can be mustered towards showing a greater reliance on financial assets amongst non-farmers is that about 78.4 percent of non-farmers reported having financial assets as opposed to 69.7 percent for farmers.⁴⁴

The evidence at this point seems to suggest the existence of a bequest motive amongst non-farmers but not amongst farmers. At the same time, all of

⁴³As mentioned earlier, it has been argued that women's labour directly related to the process of capital accumulation in the pre-industrial period. According to Marjorie G. Cohen, "The labour involved in non-market activity was critical to the accumulation of capital both in those activities characterized by capitalist productive relations and in those characterized by independent commodity production." (Cohen, 1988, p. 36) The significance of being married to real estate holdings could be interpreted as support for this view. However, it is significant only for farmers and in the overall equations, marital status variables have been insignificant. As a further test of the importance of marriage in wealth accumulation, the basic model was run for males only with a new marital status variable MAR which took on a value of 1 if the probated decedent had ever been married (i.e., married and widowers were lumped together) and 0 otherwise. The coefficient on MAR was positive but insignificant at the 5% level.

⁴⁴This difference was not statistically significant at the 5% and 1% levels.

the estimates that have been done for farmers have been low in overall significance and there have been few individual coefficients of significance. The relationships between terminal wealth and children, real estate and children, and financial assets and children have been examined and found wanting in support of the bequest motive for farmers.

However, total wealth and the value of real estate may be inappropriate variables in an environment where land is both an asset and a factor of production. In Easterlin's formulation of the target-bequest hypothesis, farmers are assumed to be concerned about providing their children with a start in life and this is translated into the specific assumption that a farmer "seeks to provide a start in life for each of his offspring at least as good as that which his father gave to him."⁴⁵ This start was normally provided in the form of a quantity of land. Farmers are concerned too with the return to their capital for it is this increase in capital which is used to provide offspring with their start in life. The prospective "return to capital" combined with the institution of multigeniture meant that a fall in the prospective growth of a farmer's capital would result in pressure to limit family size.⁴⁶

In the United States, as immigration filled up cultivable land, population density increased which led to an increase in the value of farms. As land values were bid up, it became difficult for farmers to give all of their children an equal start in life and thus farmers responded by limiting family size.⁴⁷

⁴⁵Richard A.Easterlin, "Population Change and Farm Settlement in the Northern United States," *Journal of Economic History*, Vol. 36, (1976), p.65.

⁴⁶Easterlin, 1976, pp. 64-68.

⁴⁷Conversely, David Gagan has argued that for Peel County the response was an evolution of the land inheritance system to an impartible/partible system in which the estate was devolved upon one or two principal heirs who in turn provided compensation to their siblings. See Gagan, 1981.

This process implies a relationship between fertility and the value of a farm, the size of a farm, and population density. One would expect fertility to be negatively related to the value of a farm in terms of dollars per acre and population density and positively related to farm size if there is target-bequest behaviour.

The number of children per probated decedent can be treated as the dependent variable to see if the above relationships exist amongst farmers in the sample. In Table 4.3.4, some results are presented. Four separate regressions were run. The method of estimation used for each equation was Tobit.

In the first two specifications, two measures of farm value are used: 1) VPA - The value of the farm in dollars per acre. This is the variable favoured by Easterlin as the best measure of the prospective returns facing a farmer. It was constructed by dividing farm acreage into the value of real estate owned by farmers. 2) RLAND - The value of real estate variable used to date. It should be positively related to the number of children.

In the third equation, the child variable is regressed on a population density variable, PSA. PSA is the number of inhabitants per acre in the farmer's township of residence. Given that farmers could acquire land in other townships or even adjacent counties, the limitations of this variable are obvious. In the fourth equation, the child variable is regressed on a quantity of land variable, ACRG. ACRG is the amount of land owned by each farmer measured in acres.

Table 4.3.4 reveals that only the relationship between CHILD and ACRG is significant and it is of the correct sign. The relationship between CHILD and RLAND comes close to significance at the 5% level. This can be seen as evidence in support of target-bequest saving. One could say there was no evidence of target-bequest saving if none of the hypothesized relationships was significant.

The farm-value variables are not as successful relative to the farm-size variable because they introduce complicating factors into the relationship between children and land. The quantity of land tends to be a more stable magnitude than the value of land.

The results of this section on the terminal wealth of farmers and non-farmers provide no evidence of life-cycle saving behaviour on the part of farmers. However, non-farmers exhibit a concave wealth-age profile with significant coefficients. But when separate real estate and financial asset equations were run for farmers and non-farmers, there was no significant wealth-age profile for either.⁴⁸ Moreover, even amongst non-farmers, there was no significant negative relationship between the value of financial assets and the number of children.

On the other hand, there was evidence in support of target-bequest behaviour, especially amongst non-farmers, with strong positive relationships between terminal wealth and the number of children as well as value of real estate and children. Evidence of target-bequest saving behaviour amongst farmers was found when tests more in keeping with the formulation of the Easterlin Hypothesis were made.

4.4 The Hurd Hypothesis: A Test for the Bequest Motive

In addressing the issue of whether or not the probated decedents of Wentworth County had made the transition to life-cycle saving, a battery of econometric tests has been performed. Although evidence of life-cycle and bequest behaviour has been found, the evidence has been found to be more

⁴⁸The concave wealth-age profile does not appear to be as consistent a result when the data is broken up into groups whereas the positive relationship between wealth and children is more persistent. The separate regression for males, for example, yielded a negative but insignificant coefficient on AGESQ with a t-statistic of -1.544487 but the coefficient on CHILD was positive and close to significant at the 5% level with a t-statistic of 1.888841.

supportive of a bequest motive than a life-cycle motive.

In a recent article,⁴⁹ Michael D. Hurd proposes a model and test for the bequest motive for saving. Hurd argues that since the date of one's death is uncertain, most people will die with some terminal wealth and therefore the presence of bequests whether large or small is not a test for the presence of a bequest motive. According to Hurd, in order to "infer the importance of a bequest motive, one needs to show how a bequest motive affects observable variables, and then formulate a test based on those variables."⁵⁰

Hurd says that one should compare the consumption pattern of individuals who care strongly about the welfare of their heirs with those who care weakly. An individual with a bequest motive would desire to hold more wealth than someone without and would therefore consume at a slower rate.⁵¹ In differentiating the strength of bequest motives, Hurd decided to examine whether or not individuals have offspring.

His test is "whether the saving of the elderly who have living children differs from the saving of the elderly who do not have living children."⁵² Taking Longitudinal Retirement History Survey Data on households whose heads were born between 1906 and 1911 and interviewed every two years between 1968 and 1979, Hurd calculates wealth-retention rates in each of the five two-year periods. He finds no difference in the rates of decumulation between elderly with children and elderly without children, and concludes there is no support

⁴⁹ Hurd, 1987, pp. 298-312.

⁵⁰ Hurd, 1987, p. 300.

⁵¹ Hurd, 1987, p. 300.

⁵² Hurd, 1987, p. 300.

for a bequest motive.

The argument could be raised that children are not the only reason that one would leave a bequest. For example, one could leave a bequest for a charitable organization. Amongst the testate probated decedents of this sample, the bulk of bequests were made to immediate family.⁵³

One could examine Hurd's hypothesis using aggregate data comparing the wealth of probated decedents with children to those without children. Such a comparison is presented in Table 4.4.1. It can be seen that except for 1872, average wealth of probated decedents with children was greater than those without children. Average real estate wealth and the share of wealth held as real estate were also greater for probated decedents with children. However, these results do not control for other factors.

Given the nature of our micro-data, it is impossible to duplicate Hurd's procedure, but it is possible to adapt his hypothesis to our data. The crucial element of his test is that the saving of individuals with children, and hence their terminal wealth, should differ from that of individuals without children.

One can explicitly test for this by specifying a child dummy variable (CHILD2) which takes on a value of 1 if a probated decedent had surviving children and 0 otherwise. This variable would take the place of CHILD in the set of independent variables used to estimate the wealth equation.

The results of this new regression are presented in Table 4.4.2. The new wealth equation was estimated for the entire sample as well as separately for farmers and non-farmers. In the case of the entire sample and non-farmers, the relationship between the log of real wealth and the child dummy variable is

⁵³ The percentage of testates making bequests to kin aside from wife, children and grandchildren was 23.3% in 1872, 16.0% in 1882 and 20.5% in 1892. The percentage of testates making bequests to non-kin was 20.0% in 1872, 4.0% in 1882 and 4.3% in 1892. The percentage of testates making bequests to charities was 13.3% in 1872, 0% in 1882 and 6.8% in 1892.

positive and significant at the 5% level. In the case of farmers, the same result is obtained but it is only significant at the 10% level.

It appears then that there is a difference between the terminal wealth of probated decedents with children as opposed to those without. The relationship between terminal wealth and the presence of children is positive and significant.⁵⁴ Despite the weakness of the result for farmers, these results can be interpreted as support for the existence of a bequest motive. However, the presence of a hump-shaped wealth-age profile also supports the existence of a life-cycle saving motive.⁵⁵

The relationship between children and wealth bears further investigation.

⁵⁴Some additional tests were conducted to see if it was the presence of children or the number of children that was the relevant variable in determining terminal wealth. The model in equation I, Table 4.4.2 is run with the addition of the variable CHILD which represented the number of surviving children a probated decedent had. None of the other coefficients, including CHILD2, were significantly affected. CHILD was positive but insignificant. The model was then run with a variable LOTSC which took on a value of 1 if a probated decedent had 5 or more children and 0 otherwise. Again, the model remained unaltered and LOTSC was positive but insignificant. As a final run, dummy variables were used for 0, 1 and 2 children with more than 2 children as the reference group. The dummy variable for 0 children was negative and significant while the other two dummies were negative but insignificant. When run for the farmers alone, the dummy variable for 0 children was negative but insignificant with a t-statistic of -1.5134 while those for 1 and 2 children were positive and had t-statistics of 1.7467 and 1.0982 respectively. A final examination of the model in equation I, Table 4.4.2 was conducted over separate time periods. For 1872, CHILD2 was negative and insignificant but AGE was negative and insignificant and AGESQ, positive and insignificant. For 1882, CHILD2 was positive and significant, AGE was positive and significant and AGESQ was negative but insignificant. For 1892, the results for AGE, AGESQ and CHILD2 mirrored the final model in sign and significance.

⁵⁵It was also decided to run the final model without the child variable separately on probated decedents with children (n=225) and probated decedents without children (n=58). If individuals with children saved for bequest reasons one might expect those without children to have wealth-age profiles that supported life-cycle saving behaviour. Oddly enough, when the model was run on those with children, a hump-shaped wealth-age profile with significant coefficients was the result. When the model was run for those without children, there was a hump-shape but the coefficients were not significant.

It appears that it is the presence of children, rather than the number of children, which affects the level of terminal wealth.⁵⁶ Of additional interest is whether it is the presence of children *per se* or their composition that matters. That is, would terminal wealth be influenced, more or less, by the presence of male offspring? This is done to take into account the social realities of the era for it was sons who were relied upon to work on the farm and to support parents in their old age.

The model in 4.4.2 was run with the addition of a dummy variable BOYP which took on a value of 1 if a probated decedent had male offspring and 0 otherwise. The results are presented in Table 4.4.3 and they reveal that the presence of male offspring has a positive and significant effect on the level of terminal wealth and renders the presence of children variable insignificant.

However, the results for the farmers are at odds with those for the entire sample. Although both the presence of children and the presence of males have a positive impact on the level of wealth, they are both insignificant at the 5% level.⁵⁷ Nevertheless, it would appear that under alternate specifications of the child variable, a positive relationship between children and wealth emerges even for farmers although it is not as significant as the case when the entire sample is used.

⁵⁶In addition, the model was also run on those probated decedents with children but with the inclusion of the CHILD variable. The coefficient on CHILD was positive but insignificant. This suggests that amongst people who did have children, there was no significant positive relationship between wealth and the number of children and that it was the presence of children rather than the number of children which affected the level of terminal wealth.

⁵⁷When the equation is run for farmers including BOYP but excluding CHILD2, the coefficient on BOYP is positive with a t-statistic of 1.4199. The equation was also run for farmers using dummy variables for 0, 1 and 2 boys with more than two boys as the reference group. CHILD2 was omitted from this equation. The coefficient on BOY0 (1 if 0 boys, 0 otherwise) was negative but insignificant. That on the dummies for 1 and 2 boys was positive but insignificant. When the BOY dummies were used for the entire sample, BOY0 was negative and significant at the 5% level. The dummies for 1 and 2 boys were positive but insignificant.

4.5 Wealth-Age Profiles: A Non-Parametric Approach

In our search for evidence of life-cycle, we have relied on the common practice of using age and age-squared as regressors. Regression coefficients estimated using ordinary least squares are, of course, parametric estimates. However, it has been shown that the functional form used can affect regression results.⁵⁸

Recent work by L. Magee, J. Burbidge and A.L. Robb⁵⁹ casts doubt on the use of age and age-squared as regressors in the context of estimating wealth-age profiles. Using an algorithm for non-parametric estimation of conditional quantiles, they produce quantile⁶⁰ plots of the wealth of Canadian families given the age of the heads of the families. They show how kernel-smoothed quantiles⁶¹ can produce an upward sloping wealth-age profile while other approaches, including age and age-squared as regressors would produce a hump-shaped wealth-age profile.

In Figures 4.5.1 - 4.5.17, the algorithm developed by Magee, Burbidge and Robb⁶² is applied to the final sample of Wentworth County probated decedents. The Tables plot the .2, .5 and .8 quantiles. Along the .2 quantile, for

⁵⁸For a survey of the issues, see A. Ullah, "Review Article: Non-Parametric Estimation of Econometric Functionals," *Canadian Journal of Economics*, Vol. XXI, (1988), pp. 625-58.

⁵⁹L. Magee, J.B. Burbidge and A.L. Robb, "Kernel-Smoothed Conditional Quantiles With Cross Validation: An Algorithm and Examples," McMaster University Working Paper, October 1989.

⁶⁰A quantile is a value below which a given part of a set of data must fall. The xth quantile means that a fraction x of the observations lie below this number, e.g., the .5 quantile is the median.

⁶¹Intuitively, a kernel-smoothed quantile can be regarded as a form of moving average. Median wealth at each age is adjusted by weighting it with observations of median wealth at other ages with the weights being determined by a symmetric density function called a kernel estimator. The range of other ages to be considered in weighting, the 'bandwidth', is determined by minimizing a particular loss function.

⁶²The algorithm was written using GAUSS VERSION 2.0.

example, at each age,⁶³ we are given the level of total wealth below which 20% of the probated decedents are found. The dotted lines represent the unsmoothed quantiles; the dark lines, the kernel-smoothed quantiles.

The plots are done for the separate years of the sample as well as various sub-groups, such as those with children and those without, farmers and non-farmers, males and females, high and low occupational status, and urban and rural. In addition, profiles are presented for testate and intestate decedents and for those owning real estate as well as those not owning any.

The tables are remarkably consistent in their results. Despite the variety of groupings, there is no evidence of a hump-shaped wealth-age profile but considerable evidence of a continuously upward-sloping wealth-age profile. Moreover, when Figure 4.5.4 is compared with Figure 4.5.5, it becomes apparent that at any given age, the wealth of those with children exceeds the wealth of those without, a graphic rejection of the Hurd Hypothesis. These results do not corroborate the earlier regression results showing support for life-cycle saving but they do support the case for bequest saving. These results suggest that the hump-shaped wealth-age profile obtained from the regressions could be, at least in part, the result of functional form.

4.6 Conclusion

This study of the determinants of terminal wealth held by probated decedents in late nineteenth century Wentworth County has employed regression techniques to analyze a set of historical micro-data which was constructed from probate, census and tax assessment rolls. From the results obtained, it would appear that real wealth is positively and significantly related to high

⁶³Because of the size of the sample, the probated decedents were grouped into seven ages. Twenty-five year olds included individuals aged less than thirty while 35-year olds included all those aged thirty to thirty-nine, and so forth. It should also be noted that a parabolic kernel function was used.

occupational status, length of life and the number of children a wealth holder has, and is negatively and significantly related to age-squared and low occupational status. In addition, there appeared to be a definite increase in wealth over time which could be attributed to economic growth.

The empirical results were then used to search for evidence of life-cycle or target-bequest saving behaviour. If people were life-cycle savers and decumulated then one should expect to see older people with lower terminal wealth levels, all other things being equal. If people were target-bequest savers then one would expect to see people with children leaving larger amounts of terminal wealth relative to those without children.

The results obtained suggest the presence of both life-cycle and bequest saving although the evidence for bequest saving seems stronger. The hump-shaped wealth-age profile obtained in these results should be regarded cautiously, because the coefficient on AGESQ suggests a very low rate of decumulation. Moreover, the concave wealth-age profile seems to disappear when separate asset equations are run and when the data set is broken up into groups.

Addressing the Life-Cycle Transition, separate regressions for real estate and financial assets on the variables of the final model found evidence for a bequest motive but not life-cycle saving. When broken up into farmer and non-farmer components, the regression results again provided support for target-bequest as opposed to life-cycle saving, especially for non-farmers. The bequest motive for farmers appeared stronger when the relationships explicitly described by Easterlin were modelled and tested. There was a positive and significant relationship between the quantity of land and the number of children but the relationship between the value per acre of land and the number of children, the specification favoured by Easterlin, was not significant.

The Hurd Hypothesis was then adapted for use with this set of micro-data. The results indicated that there was indeed a positive and significant

relationship between the level of terminal wealth and the presence of surviving children. However, this result was only significant at the 10% level for farmers. Moreover, it was not so much the presence of children as of male children that was important although this result too was not significant for farmers.

Kernel-smoothed quantile estimates of wealth-age profiles were then examined which showed that there was no evidence of a hump-shaped wealth-age profile. These results suggest that the hump-shaped wealth-age profile emanating from the regression equations could be partly a product of functional form as well as any underlying life-cycle saving behaviour.

From the results of this section, it is difficult to reach a definite conclusion as to which saving motive dominated in late nineteenth century Wentworth County. Amongst farmers, there appears to be no life-cycle saving motive; nor is the evidence for bequest saving entirely convincing. As for non-farmers, there seems to be life-cycle and bequest saving with the relationship between wealth and children being more persistent when the data is broken down into separate financial and real estate equations.

This of course illustrates one of the problems in empirical studies of saving and wealth holding --viz., the same data can yield results supportive of both life-cycle and bequest saving. The inability to pin down one motive or another may mean that both saving motives were present. This is not entirely unreasonable as an intermediate case where life-cycle and bequest saving coincide with one another is perhaps an apt description of reality, a reality of many different individuals exhibiting a diversity of saving behaviour over the course of their lives.

The lack of convincing evidence for the predominance of either a bequest or life-cycle saving motive makes it impossible to state categorically that the Life-Cycle Transition occurred in late nineteenth century Wentworth County.

Yet, there is some evidence to support elements of the Life-Cycle Transition hypothesis as part of the savings/wealth accumulation process. If one accepts that bequest saving logically predates life-cycle saving and since both motives appear to be present in the Wentworth County data, then it is tempting to conclude that Wentworth County was rather in the midst of a Life-Cycle Transition, a transition which the results from other studies using modern data suggest is still underway in the late twentieth century.

TABLE 4.1.1

VARIABLES USED IN STUDY

AGE	Age at death of the probated decedent in years
AGESQ	Age at death of probated decedent squared
LWELT	The log of real wealth. Real wealth is in 1900\$. (See Table 3.3.1, Note i)
URB	1 if the probated decedent resided in an urban area 0 otherwise The definition of urban is if the probate records give address of decedent as Hamilton or Dundas.
SEX	1 if probated decedent is male, 0 otherwise
CHILD	Number of living children a probated decedent had at his death

Birthplace Variables

BP1	1 if birthplace of probated decedent England and Wales 0 otherwise
BP2	1 if birthplace of probated decedent Ireland, 0 otherwise
BP3	" " Scotland , 0 otherwise
BP4	" " United States, 0 otherwise
BP5	" " Canada and Nfld, 0 otherwise
BP6	" " other, 0 otherwise

Occupational Variables

OCCF	1 if probated decedent a farmer, 0 otherwise
OCC1	1 if Katz Category I, 0 otherwise ⁱ
OCC2	" " "II, 0 otherwise
OCC3	" " "III, 0 otherwise
OCC4	" " "IV, 0 otherwise
OCC5	" " " V, 0 otherwise
OCC6	" " " VI, 0 otherwise

Religion Variables

REL1	1 if Church of England , 0 otherwise
REL2	1 if Roman Catholic, 0 otherwise
REL3	1 if Presbyterian , 0 otherwise
REL4	1 if Baptist, 0 otherwise
REL5	1 if Methodist , 0 otherwise
REL6	1 if any other, 0 otherwise

Marital Status Variables

MS1 1 if married, 0 otherwise
 MS2 1 if widow, 0 otherwise
 MS3 1 if widower, 0 otherwise
 MS4 1 if single, 0 otherwise

Seasonal Dummies

WINT 1 if probated decedent probated in Winter, 0 otherwise
 SPRING " " Spring, 0 otherwise
 SUMMER " " Summer, 0 otherwise
 FALL " " Fall, 0 otherwise

Year Dummies

YEAR72 1 if probated decedent probated in 1872, 0 otherwise
 YEAR82 " " 1882, 0 otherwise
 YEAR92 " " 1892, 0 otherwise

Notes

i

Katz's occupational classification ranks occupations on a scale of I to VI with I as the highest and V as the lowest and VI as an unclassifiable category. (See: Katz, 1975, pp. 343-348.) The classification criteria are economic and social status.

Category I, for example, contains lawyers, merchants, doctors and other individuals of this ilk. Category II includes farmers as well as minor government officials and small businessmen. Category V consists mainly of unskilled labour. Category VI includes widows and miscellaneous occupations such as 'matron of hospital or asylum' and 'keeper of house of ill-fame'.

TABLE 4.1.2
OVERALL REGRESSION RESULTS

Dependent Variable: LWELT

Independent Variables	I		II	
	Coefficient	T-stat	Coefficient	T-stat
Constant	4.2710	4.5604*	4.6640	4.9065*
AGE	0.0756	2.6942*	0.0666	2.3575*
AGESQ	-0.0005	-2.1170*	-0.0004	-1.8443
URB	0.3214	1.3456	0.3201	1.3482
SEX	0.5389	1.1345	0.6200	1.3086
BP1	-0.3751	-0.8556	-0.3688	-0.8463
BP2	-0.3688	-0.8150	-0.3539	-0.7868
BP3	0.0787	0.1664	0.1012	0.2151
BP4	-0.1274	-0.2068	-0.1007	-0.1644
BP5	-0.3909	-0.8935	-0.4460	-1.0237
OCCF	0.1209	0.3558	0.4453	0.1310
OCC1	1.3543	2.6753*	1.2411	2.4520*
OCC2	0.4282	0.8701	0.3284	0.6681
OCC3	-0.5099	-1.0624	-0.6092	-1.2707
OCC4	-0.9361	-1.4592	-0.9626	-1.5095
OCC5	-1.4565	-2.3847*	-1.5317	-2.5187*
REL1	0.4444	1.1627	0.3929	1.0320
REL2	0.1062	0.2405	0.0635	0.1445
REL3	0.0575	0.1575	0.0113	0.0311
REL4	0.3487	0.6456	0.2530	0.4694
REL5	0.5011	1.3144	0.4346	1.1428
MS1	0.2796	0.9938	0.0614	0.2051
MS2	0.0881	0.2119	-0.0468	-0.1119
MS3	-0.4040	-1.1156	-0.5825	-1.5726
WINT	0.0772	0.3654	0.0749	0.3567
SPRING	-0.0260	-0.1167	-0.0628	-0.2827
FALL	-0.1988	-0.8669	-0.2184	-0.9576
YEAR82	0.0150	0.0650	0.0082	0.0357
YEAR92	0.4082	1.8686	0.3645	1.6706
CHILD	-	-	0.0697	2.0366*
ADJ R ²	0.3013		0.3098	
F Statistic	5.3421*		5.3648*	
n	283		283	

* denotes significant at 5% level

FIGURE 4.1.1

WEALTH-AGE RELATIONSHIP

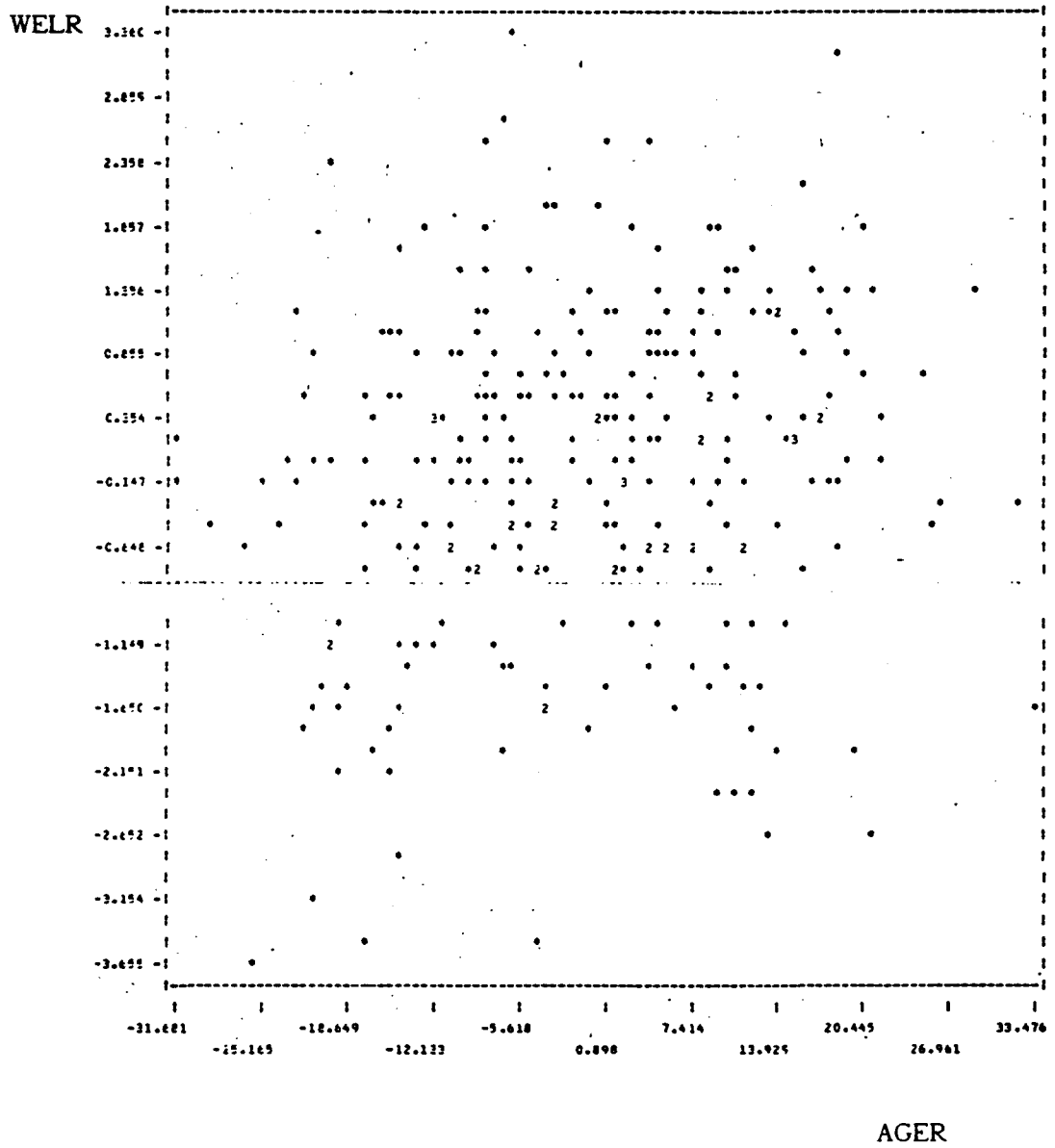


TABLE 4.1.3

WEALTH EQUATION: FINAL RESULTS

Dependent Variable: LWELT

Independent Variables	I		II	
	Coefficient	T-stat	Coefficient	T-stat
Constant	3.9557	5.3242*	4.1617	5.5762*
AGE	0.0848	3.1884*	0.0788	2.9585*
AGESQ	-0.0006	-2.5315*	-0.0005	-2.3410*
URB	0.1903	1.1238	0.2357	1.3862
SEX	0.5987	1.3056	0.6571	1.4376
OCC1	1.2835	2.6381*	1.1840	2.4335*
OCC2	0.4722	1.0744	0.3587	0.8136
OCC3	-0.4936	-1.0901	-0.5626	-1.2460
OCC4	-0.8629	-1.3905	-0.8666	-1.4040
OCC5	-1.5607	-2.7234*	-1.6149	-2.8299*
MS1	0.3919	1.4631	0.1777	0.6176
MS2	0.2466	0.6270	0.1132	0.2851
MS3	-0.2360	-0.6879	-0.4206	-1.1886
YEAR82	0.0165	0.0744	0.0075	0.0338
YEAR92	0.4087	2.0020*	0.3478	1.6934
CHILD	-	-	0.0645	1.9733*
ADJ R ²	0.3155		0.3228	
F-Statistic	10.2846*		9.9622*	
n	283		283	

* indicates significant at 5% level

TABLE 4.1.3A

RESULTS OF SIGNIFICANCE TESTS FOR SELECTED GROUPS OF INDEPENDENT VARIABLES IN
REGRESSION ANALYSIS

GROUP OF VARIABLES TESTED	NUMBER OF VARIABLES IN GROUP	F-RATIO ⁱ
All variables	15	9.962*
Age variables (AGE,AGESQ)	2	8.994*
Urbanization (URB)	1	1.915
Gender (SEX)	1	2.040
Occupational Status (OCC1-5)	5	13.292*
Marital Status (MS1-3)	3	2.276
Children (CHILD)	1	3.873*
Time (YEAR82-92)	2	2.457

NOTES

ⁱ

* denotes significant at the 5% level

TABLE 4.1.4
OCCUPATION AND AVERAGE AGE AT DEATHⁱ

a. TEN OCCUPATIONS HAVING THE HIGHEST AVERAGE AGE AT DEATH
ONTARIO ,1881

<u>OCCUPATION</u>	<u>KATZ CLASS</u>	<u>NUMBER OF DEATHS</u>	<u>AVG. AGE AT DEATH</u>
Gentleman	I	228	70
Soldiers and Pensioners	IV and VI	54	70
Masons	III	37	66
Weavers	IV	37	66
Provincial Land Surveyors	II	5	65
Gardeners	IV	28	62
Clergymen	I	39	61
Farmers	II	2519	60
Shoemakers	III	93	60
Tanners and Curriers	III	10	59

b. TEN OCCUPATIONS HAVING THE LOWEST AVERAGE AGE AT DEATH
ONTARIO, 1881

Telegraph Operators	II	3	25
Tobacconists and Cigar Makers	II	8	29
Milliners and Dress Makers	VI	32	31
Artists	II	4	31
Lumbermen	IV	13	34
Salesmen and Clerks	II	41	36
Printers	III	20	36
Sawyers	III	9	38
Editors	II	2	38
Seamstresses	VI	16	40

Notes

ⁱ

Source: Ontario Sessional Papers, 47 Victoria, 1884, No. 5, pp. 50-51.

TABLE 4.1.5

ESTIMATION OF AGE AT DEATH EQUATION

Dependent Variable: AGE

	Coefficient	T-stat
Independent Variables		
Constant	36.6497	8.9283*
OCCH	4.9296	2.1150*
URB	-3.4786	-1.8354
SEX	4.7439	1.4522
MS1	11.2872	3.6307*
MS2	33.9813	7.8873*
MS3	22.1178	5.6508*
YEAR82	1.7454	0.6460
YEAR92	5.2190	2.1267*
ADJ R ²	0.2421	
F-Statistic	12.2570*	
n	283	

* denotes significant at 5% level

TABLE 4.1.6

ESTIMATION OF WEALTH EQUATION OVER SEPARATE TIME PERIODS:
WITH-CHILD VARIANT

Dependent Variable: LWELT

Independent Variables	1872	1882	1892
Constant	7.2033* (3.1881)	4.2065* (3.6103)	3.7473* (3.4391)
AGE	-0.0498 (-0.5798)	0.0723 (1.5998)	0.1011* (2.6519)
AGESQ	0.0007 (0.9129)	-0.0005 (-1.2437)	-0.0007* (-2.2376)
URB	0.5017 (1.0059)	-0.0116 (-0.0399)	0.3051 (1.2580)
SEX	3.4194 (1.8851)	1.4219 (1.066)	0.2699 (0.4768)
OCC1	-2.6651 (-1.8513)	0.3978 (0.3021)	2.1359* (3.2870)
OCC2	-2.0804 (-1.3417)	-0.4057 (-0.3202)	0.6927 (1.2607)
OCC3	-3.6099 (-2.3258)*	-0.4259 (-0.3161)	-0.3036 (-0.5433)
OCC4	0.1037 (0.0589)	- ⁱ	-0.6131 (-0.7905)
OCC5	-5.6924* (-3.7730)	-2.1148 (-1.5120)	-0.4155 (-0.5034)
MS1	0.2887 (0.4159)	0.4740 (0.8277)	0.1871 (0.4694)
MS2	0.2459 (0.1726)	-0.0205 (-0.0245)	0.3147 (0.6121)
MS3	-0.4438 (-0.4336)	-0.0812 (-0.1219)	-0.4652 (-0.9274)
CHILD	-0.0371 (-0.4446)	0.0560 (0.9278)	0.0828 (1.8550)
ADJ R ²	0.3350	0.3298	0.3387
F-Statistic	2.8988*	3.9521*	7.0279*
n	50	79	154

* denotes significant at the 5% level. T-statistics are in brackets beneath the coefficient estimates.

NOTES

ⁱ

Could not be estimated for 1882 due to singularity of the data. There were 0 individuals of Classification IV in 1882.

TABLE 4.1.7

ESTIMATION OF WEALTH EQUATION OVER SEPARATE TIME PERIODS: NO-CHILD
VARIANT

Dependent Variable: LWELT

Independent Variables	1872	1882	1892
Constant	7.4394* (3.4248)	4.1170* (3.5495)	3.5667* (3.2585)
AGE	-0.0579 (-0.6965)	0.0748 (1.6617)	0.1084* (2.8328)
AGESQ	0.0008 (1.0312)	-0.0005 (-1.2782)	-0.0008* (-2.3960)
URB	0.5327 (1.0904)	-0.0451 (-0.1568)	0.2380 (0.9840)
SEX	3.3853 (1.8886)	1.3138 (0.9895)	0.1969 (0.3458)
OCC1	-2.6518 (-1.8628)	0.5448 (0.4172)	2.2936* (3.5298)
OCC2	-2.1171 (-1.3823)	-0.2403 (-0.1918)	0.8068 (1.4652)
OCC3	-3.5633* (-2.3264)	-0.2859 (-0.2138)	-0.2128 (-0.3789)
OCC4	0.0480 (0.0276)	-	-0.6410 (-0.8196)
OCC5	-5.7006* (-3.4196)	-2.0134 (-1.4454)	-0.3663 (-0.4403)
MS1	0.1783 (0.2782)	0.6284 (1.1478)	0.4917 (1.3422)
MS2	0.2160 (0.1535)	0.0200 (0.0239)	0.5433 (1.0792)
MS3	-0.5539 (-0.5638)	0.0567 (0.0874)	-0.2003 (-0.4131)
ADJ R ²	0.3494	0.3312	0.3273
F-Statistic	3.1932*	4.2186*	7.2022*
n	50	79	154

* denotes significant at 5% level. T-statistics in brackets.

TABLE 4.2.1
REAL ESTATE AND FINANCIAL ASSET EQUATIONS
METHOD OF ESTIMATION: TOBIT

DEPENDENT VARIABLE	RLAND2 ⁱ		RFIN2 ⁱⁱ	
	Coefficient	T-Stat	Coefficient	T-Stat
INDEPENDENT VARIABLES				
Constant	-30.4517	-3.2778*	-5.7170	-0.9685
AGE	0.4321	1.3801	0.1373	0.6447
AGESQ	-0.0034	-1.2632	-0.0009	-0.5029
URB	3.2634	1.7107	2.6779	2.0083*
SEX	10.1113	1.7847	2.3538	0.6210
OCC1	9.8673	1.7242	7.3724	1.8345
OCC2	0.2503	0.0468	-1.0003	-0.2757
OCC3	-6.0574	-1.1231	-3.4258	-0.9182
OCC4	-9.2008	-1.1341	-6.2049	-1.0773
OCC5	-5.9712	-0.8819	-3.5843	-0.7541
MS1	3.5920	1.0538	-1.9659	-0.8523
MS2	5.7511	1.2018	-0.6942	-0.2253
MS3	-1.8466	-0.4528	0.4343	0.1518
YEAR82 ⁱⁱⁱ	0.3587	0.1462	-	-
YEAR92	6.0724	2.6386*	0.2230	0.1752
CHILD	1.0973	3.1261*	0.1517	0.5790
SIGMA ^{iv}	12.3095	20.3125	8.2322	18.4611

Percent Positive
Observations on
Dependent Variable

74.2049

75.9657

Log of Likelihood
Function

-866.539

-663.551

Number of Observations

283

233

* denotes significant at 5% level of significance

NOTES

i

RLAND2 is the real value of real estate in 1900\$ transformed by dividing real estate by 1000. This was done because of the inability of the statistical package to handle very large numbers.

ii

RFIN2 is the real value of financial assets in 1900\$ transformed in the same manner as real estate.

iii

Because financial assets were not available for 1872, the 1882 year dummy was dropped for the financial assets equation.

iv

SIGMA, the standard deviation is estimated along with the rest of the coefficients in TSP.

TABLE 4.3.1
ESTIMATES OF WEALTH EQUATIONS FOR FARMERS AND NON-FARMERS
(Method of Estimation: OLS)

Dependent Variable: LWELT

Independent Variables	Farmers	Non-Farmers	
		I	II
Constant	4.9181* (2.8827)	3.8391* (3.8032)	3.8125* (4.1902)
AGE	0.0401 (0.8732)	0.0805* (2.1529)	0.0892* (2.6691)
AGESQ	-0.0003 (-0.7860)	-0.0005 (-1.4860)	-0.0006* (-2.0469)
URB	-1.4623 (-1.4307)	0.3930 (1.4877)	0.3356 (1.3743)
SEX	1.5408 (1.4219)	0.6148* (2.1635)	0.5229 (1.0243)
OCC1	-	-	1.2379* (2.2864)
OCC2	-	-	0.4126 (0.7907)
OCC3	-	-	-0.5201 (-1.0295)
OCC4	-	-	-0.7962 (-1.1844)
OCC5	-	-	-1.5023* (-2.3939)
MS1	0.6861 (1.4904)	0.0693 (0.2176)	-0.0136 (-0.0375)
MS2	-	-	-0.0636 (-0.1373)
MS3	-0.1334 (-0.2663)	-0.5469 (-1.1982)	-0.4797 (-0.9984)
YEAR82	0.3925 (1.2791)	-0.0148 (-0.0433)	-0.0578 (-0.1902)
YEAR92	0.3226 (1.1352)	0.1362 (0.4425)	0.3772 (1.3528)
CHILD	-0.0159 (-0.3417)	0.1383* (2.8376)	0.1061* (2.3845)
ADJ R ²	0.0901	0.1846	0.3559
F-Statistic	1.935	5.931	8.220
n	86	197	197

* denotes significant at 5% level. T-statistics are in brackets beneath the coefficient estimates

TABLE 4.3.2
REAL ESTATE EQUATIONS: FARMERS VS NON-FARMERS
(Method of Estimation: Tobit)

Dependent Variable: RLAND ⁱ	Farmers	Non-Farmers
Independent Variables		
Constant	-35007.0 (-0.00001)	-47729.0 (-3.3970)
AGE	182.84 (1.0303)	791.11 (1.6377)
AGESQ	-1.4135 (-0.9672)	-6.5338 (-1.5420)
URB	-29185.0 (-0.00001)	7634.9* (2.3098)
SEX	28656.0 (0.00001)	11929.0 (1.6570)
OCC1	-	9261.5 (1.2819)
OCC2	-	-3568.4 (-0.5051)
OCC3	-	-8261.9 (-1.2086)
OCC4	-	-5922.2 (-0.7026)
MS1	4443.6* (2.4254)	2964.7 (0.5679)
MS2	-	7293.2 (1.1186)
MS3	742.65 (0.3793)	-5405.4 (-0.8038)
YEAR82	1483.8 (1.2440)	386.75 (0.0944)
YEAR92	3066.4* (2.7242)	7728.8* (2.0191)
CHILD	-80.547 (-0.4448)	2059.2* (3.6494)
Percent Positive Observations On Dependent Variable	90.7	67.0
Log of Likelihood Function	-758.19501	-1486.7691
n	86	197

* Denotes significant at 5% level of significance

NOTES

ⁱ
RLAND was not rescaled for this set of estimates because they were done with SHAZAM VERSION 5.0 which had no problem handling the large numbers. SHAZAM was substituted for TSP for this reason. It should be noted that when TSP was able to deliver TOBIT estimates, they were identical to those delivered by SHAZAM. Since non-rescaled data was used, these coefficients should be divided by 1000 so that direct comparison can be made to Table 4.2.1.

TABLE 4.3.3
FINANCIAL ASSET EQUATIONS: FARMERS VS NON-FARMERS
(Method of Estimation: Tobit)

Dependent Variable: RFIN ⁱ		
Independent Variables	Farmers	Non-Farmers
CONSTANT	-49330.0 (-0.00002)	-3851.2 (-0.5523)
AGE	438.27 (1.2667)	39.173 (0.1501)
AGESQ	-3.5502 (-1.2831)	0.0581 (0.0253)
URB	-1240.90 (-0.2333)	2118.8 (1.0681)
SEX	-38544.0 (-0.00002)	1810.4 (0.4212)
OCC1	-	7821.1 (1.7098)
OCC2	-	481.29 (0.1131)
OCC3	-	-3079.9 (-0.7250)
OCC4	-	-6636.7 (-1.0186)
OCC5	-	-2724.4 (-0.5118)
MS1	989.27 (0.3340)	-2771.1 (-0.9585)
MS2	-	-1709.0 (-0.4741)
MS3	1508.7 (0.4833)	372.88 (0.0901)
YEAR92	-1657.3 (-1.1862)	908.19 (0.5349)
CHILD	-314.89 (-1.0935)	427.95 (1.1893)
Percent Positive	69.7	78.44
Observations on Dependent Variable		
Log of Likelihood Function	-470.49	-1403.50
No. of Observations	66	167

* denotes significant at 5% level of significance

NOTES

ⁱ
RFIN was not rescaled for this set of estimates for same reasons as RLAND.
See Table 4.3.2, note *i*.

TABLE 4.3.4

MISCELLANEOUS TESTS OF THE EASTERLIN TARGET BEQUEST HYPOTHESISⁱ

Dependent Variable: CHILD

	Coefficient	T-stat
Equation I		
Constant	4.1343	8.0454
VPA	-0.0007	-0.4284
Log of Lkhd Func.		-203.97
Equation II		
Constant	3.4245	5.9021
RLAND	0.0002	1.9122
Log of Lkhd Func.		-202.23
Equation III		
Constant	4.0453	8.0883
PSA	0.1392	0.6749
Log of Lkhd. Func.		-203.83
Equation IV		
Constant	3.1958	5.4455
ACRG	0.0082	2.3666* ⁱⁱ
Log of Lkhd. Func.		-201.26
Percent Positive		
Observations on		
Dependent Variable	87.2	
n	86	

* denotes significant at 5% level of significance

NOTES

ⁱ

The child variable was initially regressed on the variables of the basic model to see what other variables might affect the number of children. All were insignificant except age and age squared. CHILD varied positively with age and negatively with age squared. This is to be expected as the older one is, the more likely it is for children to have predeceased you.

Equations I-IV in this table were run with age and age-squared as additional variables but in these specifications, age and age-squared were insignificant. The sign and significance of VPA, RLAND, PSA and ACRG were not affected by the inclusion or omission of age and age-squared.

ⁱⁱ

A positive and significant relationship between farm size and the number of children was also found by Marvin McInnis in Upper Canada during the mid-nineteenth century. See: McInnis, 1977, pp. 201-227. For some American empirical evidence, see: Morton Owen Schapiro, 1982, pp. 577-600. Schapiro concludes that the availability of land was an important factor in determining the demand for children and ultimately, the fertility rate.

TABLE 4.4.1
 COMPARING PROBATED DECEDENTS WITH CHILDREN TO THOSE WITHOUT
 (Standard deviations in brackets)

	1872	1882	1892
Percentage of Probated Decedents With Children	66.0	81.0	83.1
Average Total Wealth of probated decedents in \$1900: With Children	\$6,639.30 (11,451.49)	\$7,121.51 (10,288.12)	\$11,097.42 (22,843.44)
Without Children	\$9,148.64 (18,145.60)	\$1,551.03 (2,296.27)	\$2,913.82 (3,257.95)
Average Real Estate Wealth of probated decedents in \$1900: With children	\$3,690.95 (6,538.44)	\$3,117.69 (4,321.35)	\$6,803.13 (16,517.91)
Without children	\$1,752.26 (4,712.51)	\$422.84 (693.09)	\$1,043.54 (1,365.94)
Average Financial Asset Wealth of probated decedents in \$1900: With children	-	\$2,596.66 (4,807.77)	\$2,958.15 (9,571.94)
Without children	-	\$1,045.59 (1,968.56)	\$1,678.12 (2372.33)
Share of wealth held as real estate: With children	0.56	0.44	0.61
Without children	0.19	0.27	0.36

TABLE 4.4.2

TESTING THE HURD HYPOTHESIS
(Method of Estimation: OLS)

Dependent Variable: LWELT

Independent Variables	I Entire Sample	II Farmers	III Non-Farmers
Constant	4.0429* (5.5044)	3.9447* (2.2372)	3.7215* (4.0913)
AGE	0.0843* (3.2088)	0.0394 (0.9002)	0.0933* (2.7924)
AGESQ	-0.0006* (-2.5610)	-0.0003 (-0.8033)	-0.0006* (-2.1469)
URB	0.2268 (1.3514)	-1.6201 (-1.6245)	0.3387 (1.3821)
SEX	0.6477 (1.4290)	2.5130* (2.1502)	0.4472 (0.8761)
OCC1	1.1935* (2.4781)	-	1.3313* (2.4670)
OCC2	0.3726 (0.8555)	-	0.4884 (0.9375)
OCC3	-0.5951 (-1.3263)	-	-0.4879 (-0.9642)
OCC4	-0.8814 (-1.4379)	-	-0.7939 (-1.1771)
OCC5	-1.5941* (-2.8157)	-	-1.4335* (-2.2808)
MS1	-0.1566 (-0.4746)	-0.2582 (-0.4132)	-0.1807 (-0.4472)
MS2	-0.1861 (-0.4446)	-	-0.2417 (-0.4951)
MS3	-0.7298 (-1.9075)	-0.9835 (-1.5156)	-0.5988 (-1.1837)
YEAR82	-0.0597 (-0.2698)	0.4285 (1.4206)	-0.1531 (-0.4924)
YEAR92	0.2909 (1.4117)	0.3449 (1.2407)	0.3310 (1.1524)
CHILD2	0.6516* (2.7800)	0.8913 (1.7755)	0.5955* (2.1261)
ADJ R ²	0.3323	0.1250 ⁱ	0.3518
F-Statistic	10.3552*	2.349*	8.093*
n	283	86	197

* denotes significant a 5% level of significance

NOTES

ⁱ
Comparing these results for farmers with those of Table 4.3.1 reveals that when CHILD2 is used, there is an improvement in R². The F-Statistic is also more significant.

TABLE 4.4.3
 TESTING THE HURD HYPOTHESIS:
 PRESENCE OF CHILDREN VS PRESENCE OF MALE CHILDREN
 (Method of Estimation: OLS)

Dependent Variable: LWELT

Independent Variables	I Entire Sample	II Farmers
Constant	3.8666* (5.2332)	3.9035* (2.1176)
AGE	0.0882* (3.3127)	0.0402 (0.8694)
AGESQ	-0.0006* (-2.5706)	-0.0003 (-0.7719)
URB	0.2975 (1.7560)	-1.6305 (-1.5909)
SEX	0.7311 (1.6187)	2.5217* (2.0989)
OCC1	1.1122* (2.2993)	-
OCC2	0.2301 (0.5277)	-
OCC3	-0.6003 (-1.3459)	-
OCC4	-0.7690 (-1.2627)	-
OCC5	-1.4736 (-2.5010)*	-
MS1	-0.2368 (-0.7158)	-0.2662 (-0.4141)
MS2	-0.2907 (-0.6914)	-
MS3	-0.9013* (-2.3252)	-0.9901 (-1.4836)
YEAR82	0.0159 (0.0677)	0.4186 (1.3267)
YEAR92	0.2279 (1.0783)	0.3390 (1.1536)
CHILD2	0.2772 (0.9241)	0.7317 (1.0350)
BOYP	0.5306* (2.2567)	0.1692 (0.3272)
ADJ R ²	0.3445	0.1083
F _i -Statistic	9.9004*	1.9959
n	272	83

* denotes significant a 5% level of significance

NOTES

ⁱ
 Eleven individuals (three of them farmers) had to be omitted because information on the gender of their children was not available.

FIGURE 4.5.1

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:1872

GAUSS Nov. 1, 1989 8:02:17 PM

TW -1872

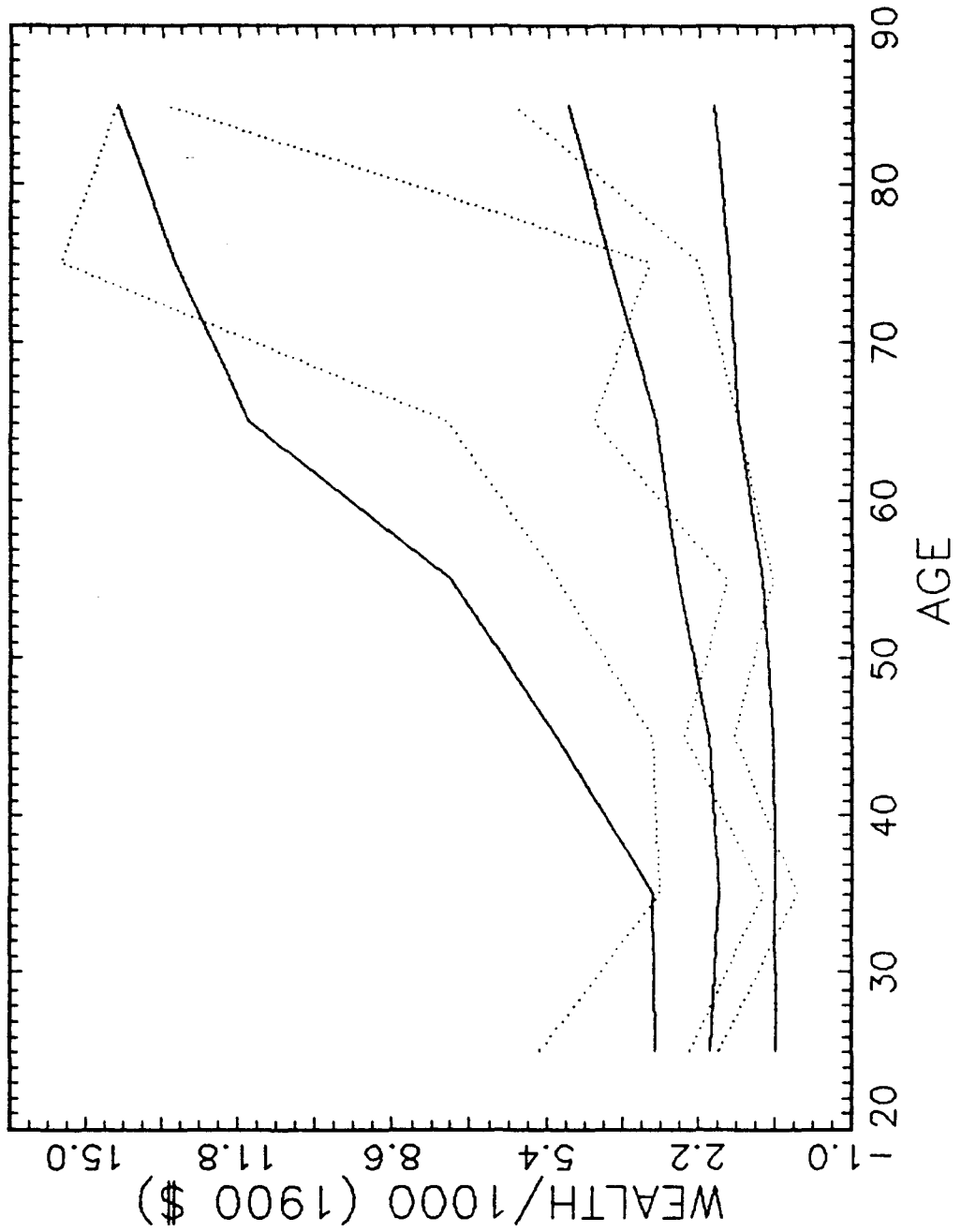


FIGURE 4.5.2

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE: 1882

TW - 1882

GAUSS Nov. 1, 1989 7:48:55 PM

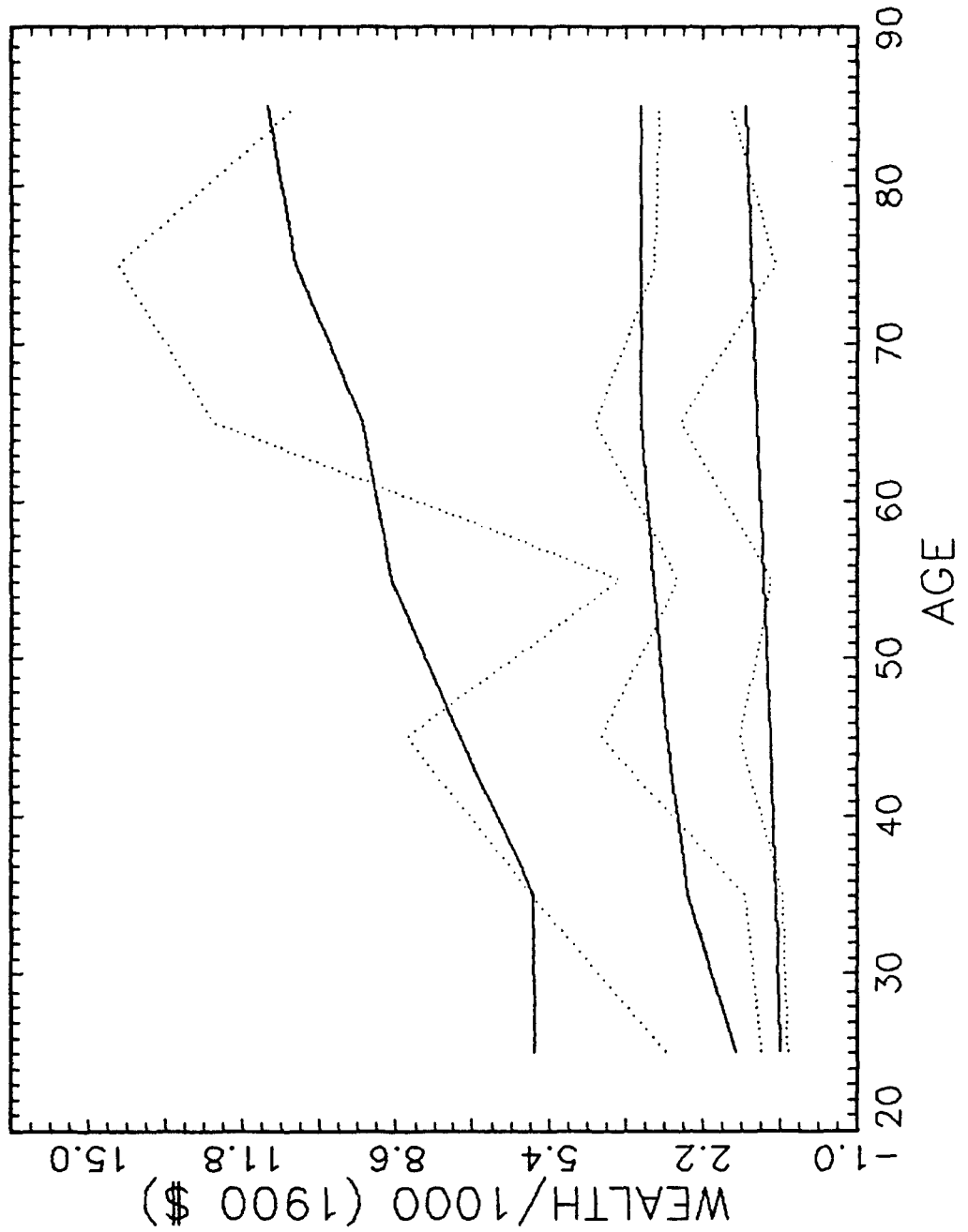


FIGURE 4.5.3

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE: 1892

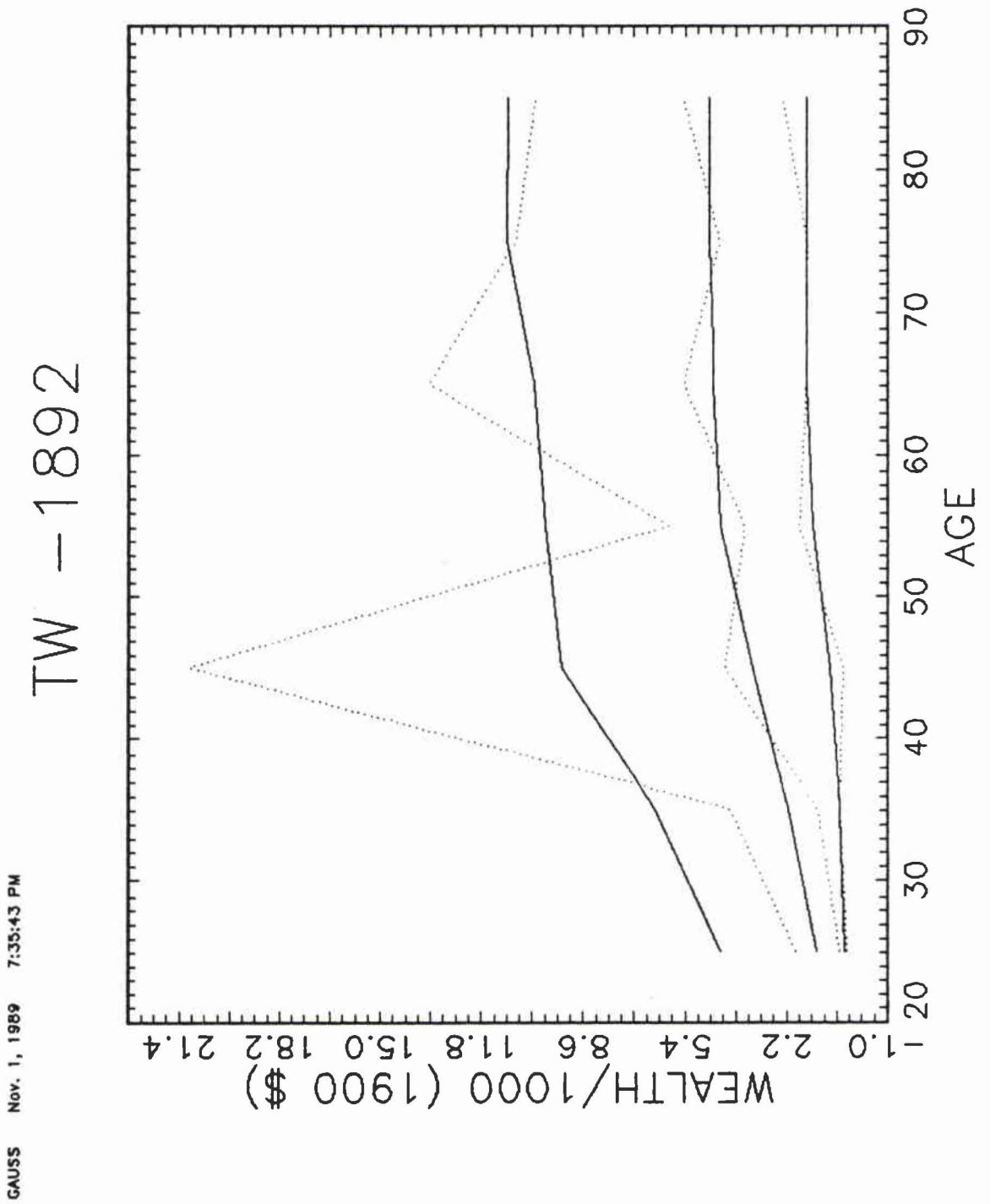


FIGURE 4.5.4

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
PROBATED DECEDENTS WITH CHILDREN

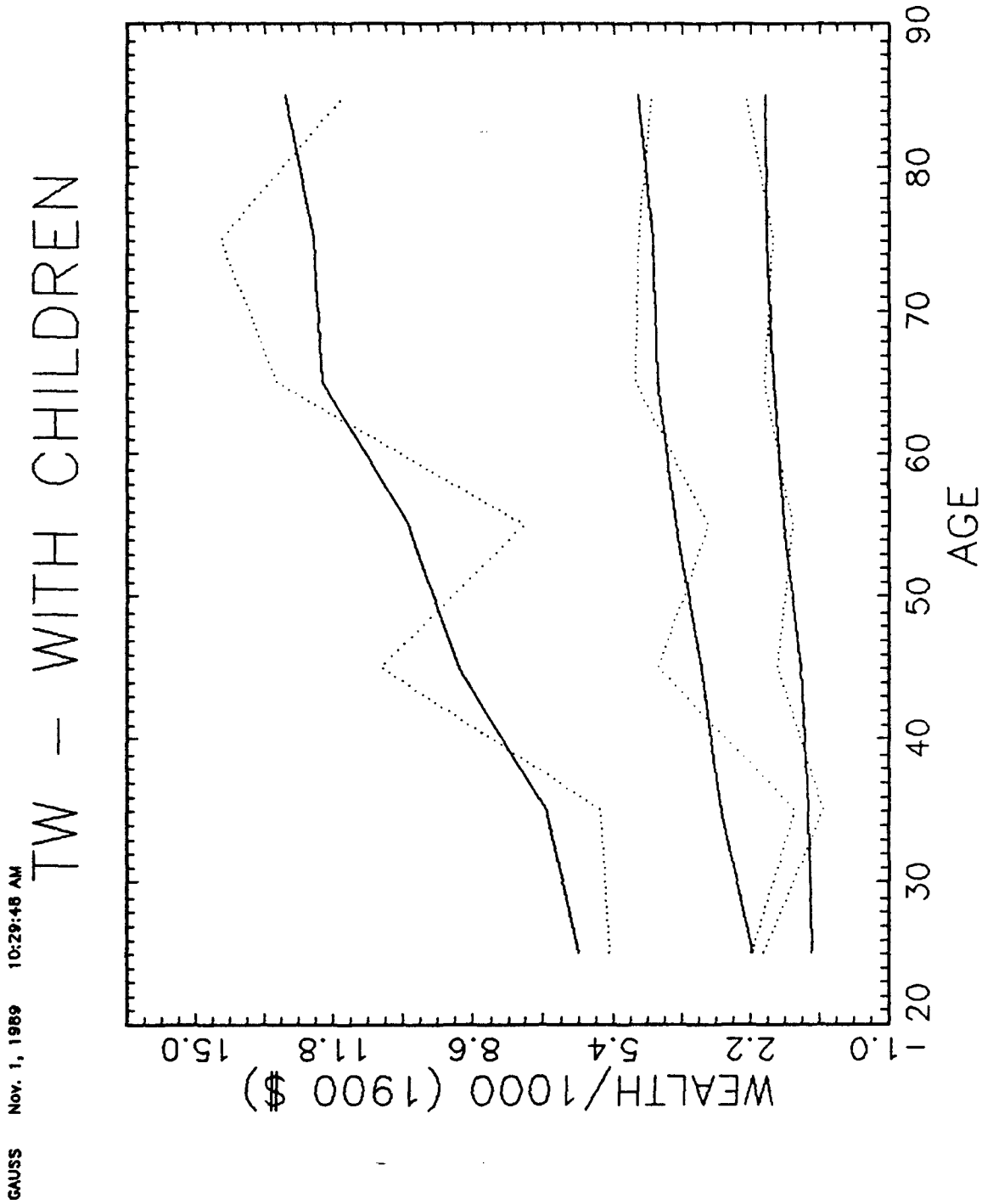


FIGURE 4.5.5

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
PROBATED DECEDENTS WITHOUT CHILDREN

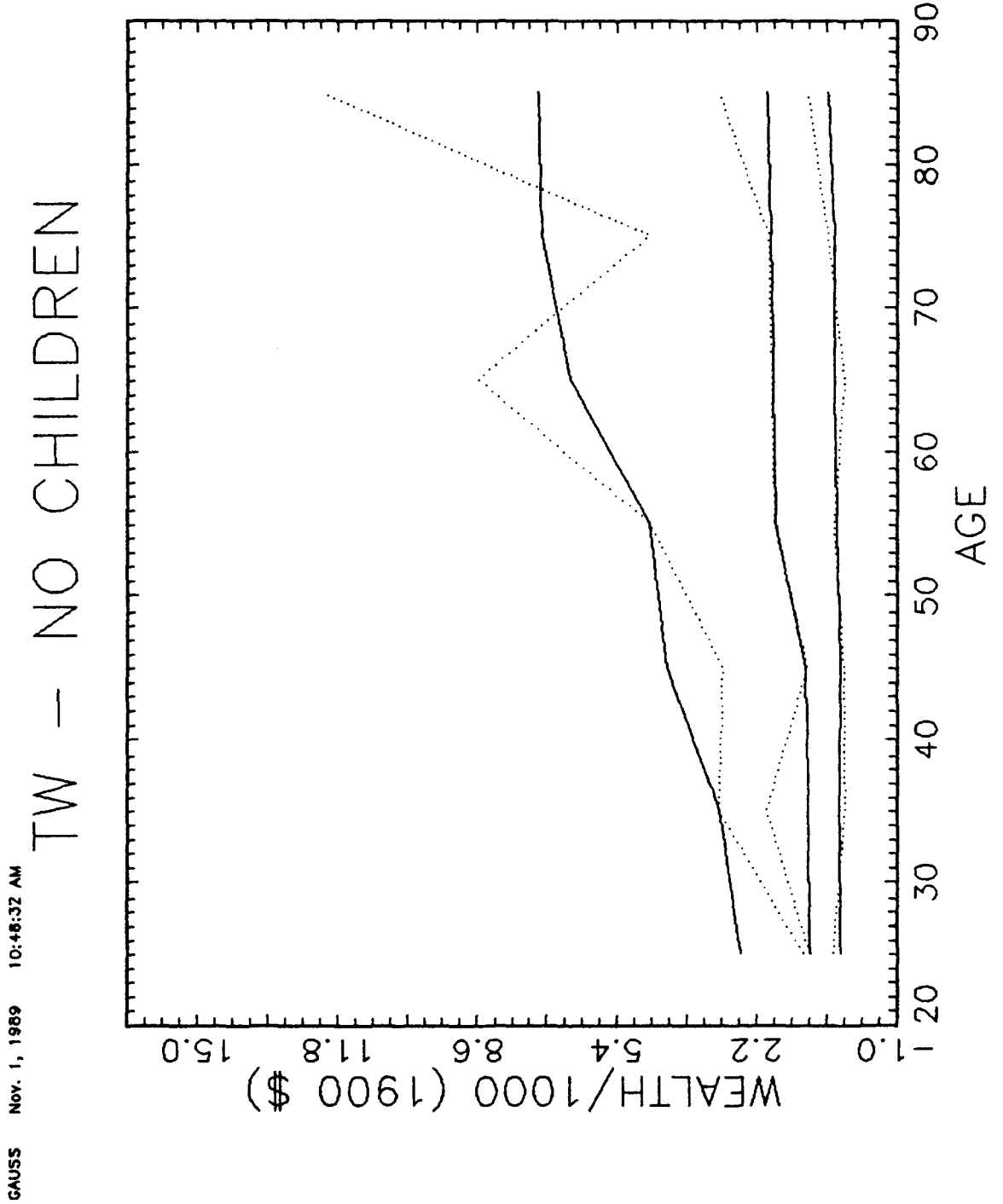


FIGURE 4.5.6

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
URBAN PROBATED DECEDENTS

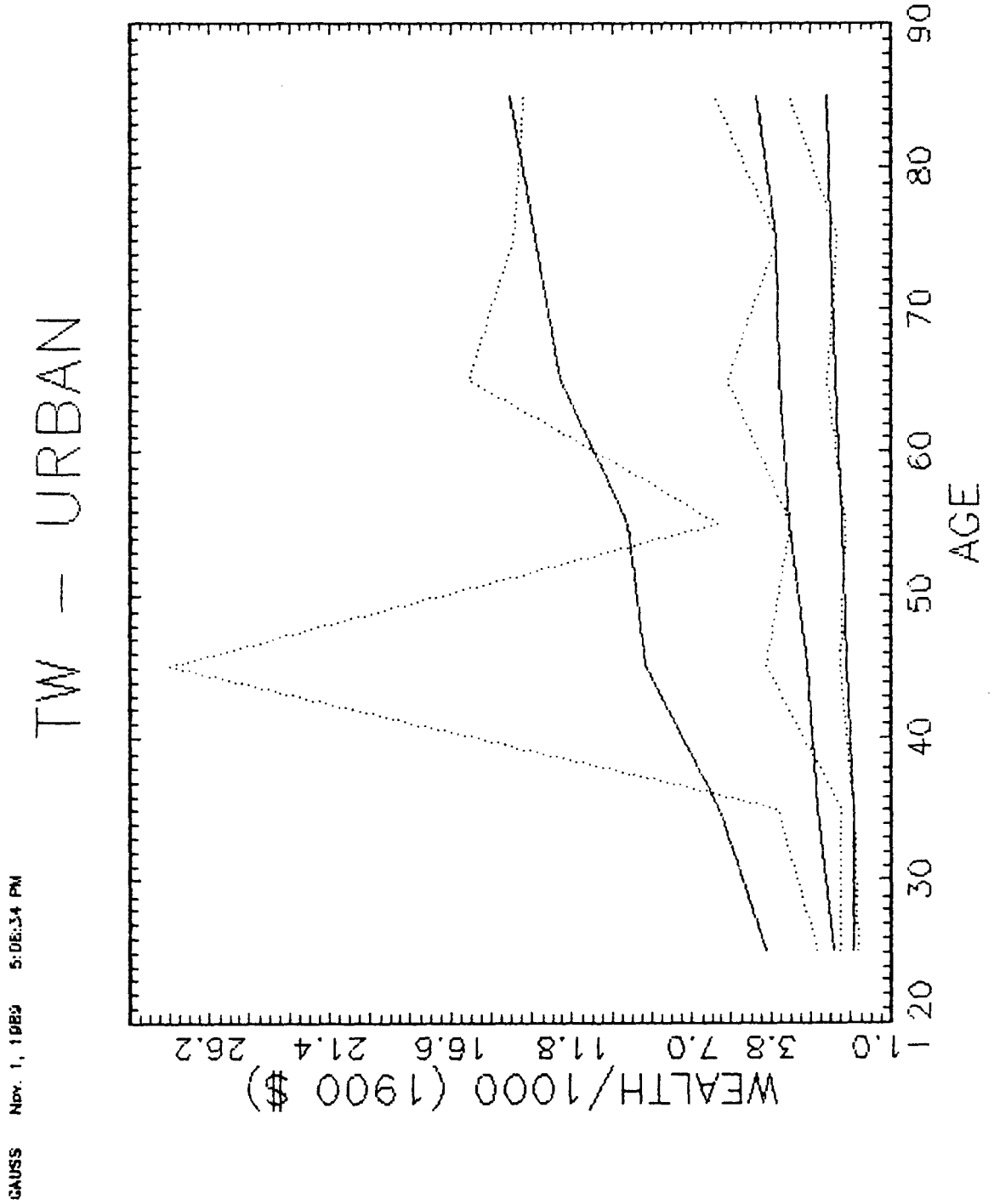


FIGURE 4.5.7

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
RURAL PROBATED DECEDENTS

TW - RURAL

GAUSS Nov. 1, 1989 5:24:58 PM

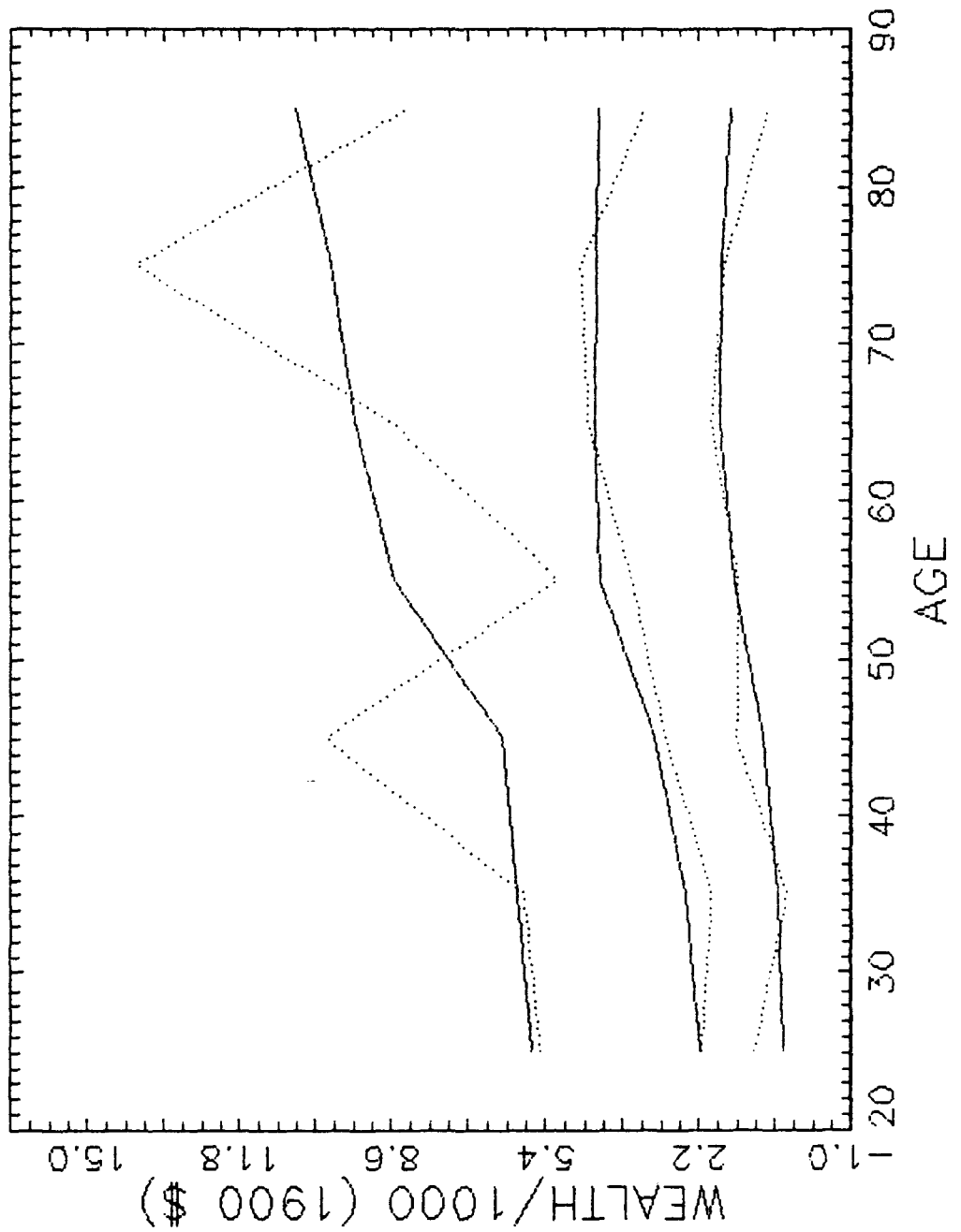


FIGURE 4.5.8

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
TESTATE PROBATED DECEDENTS

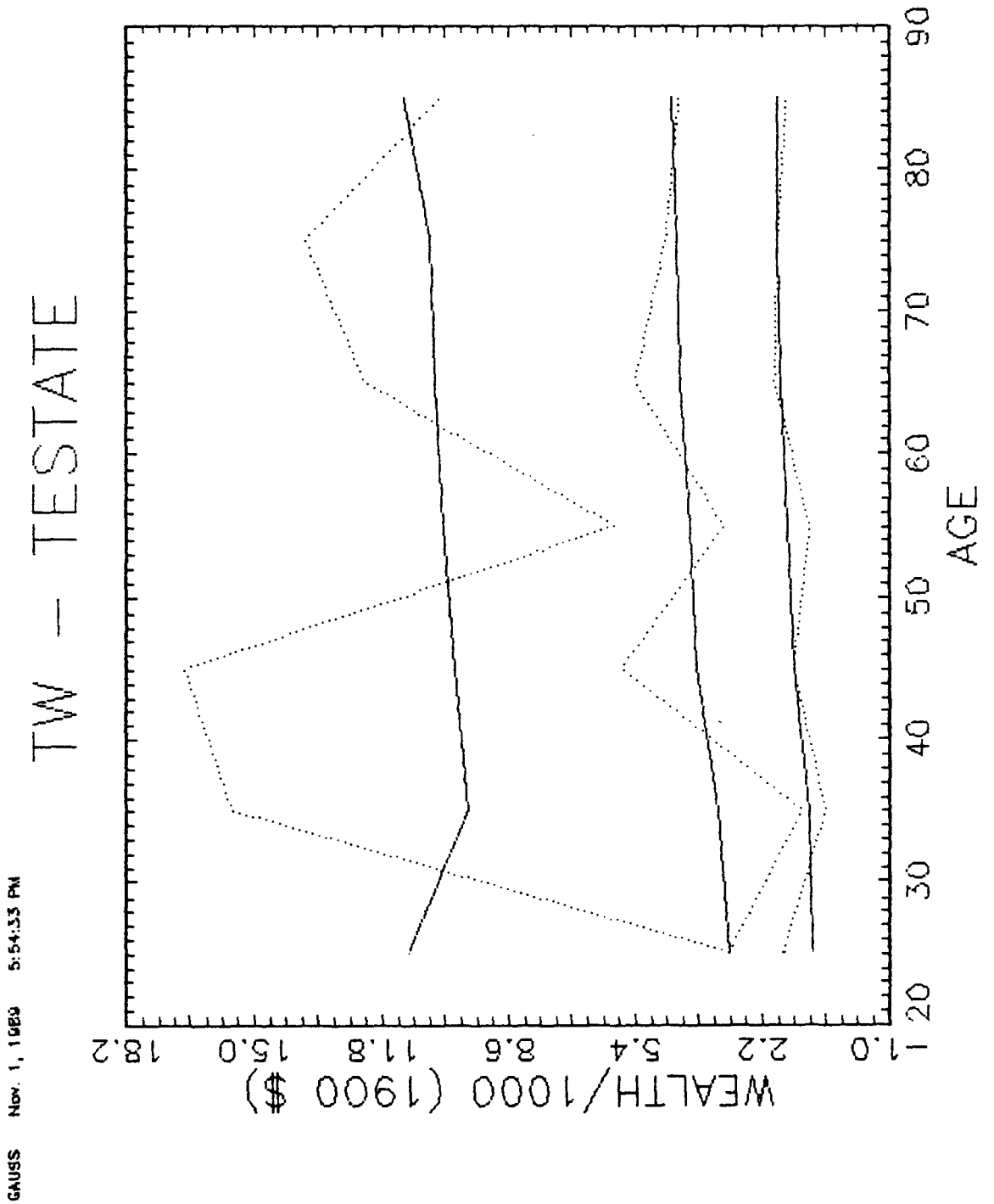


FIGURE 4.5.9

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
INTESTATE PROBATED DECEDENTS

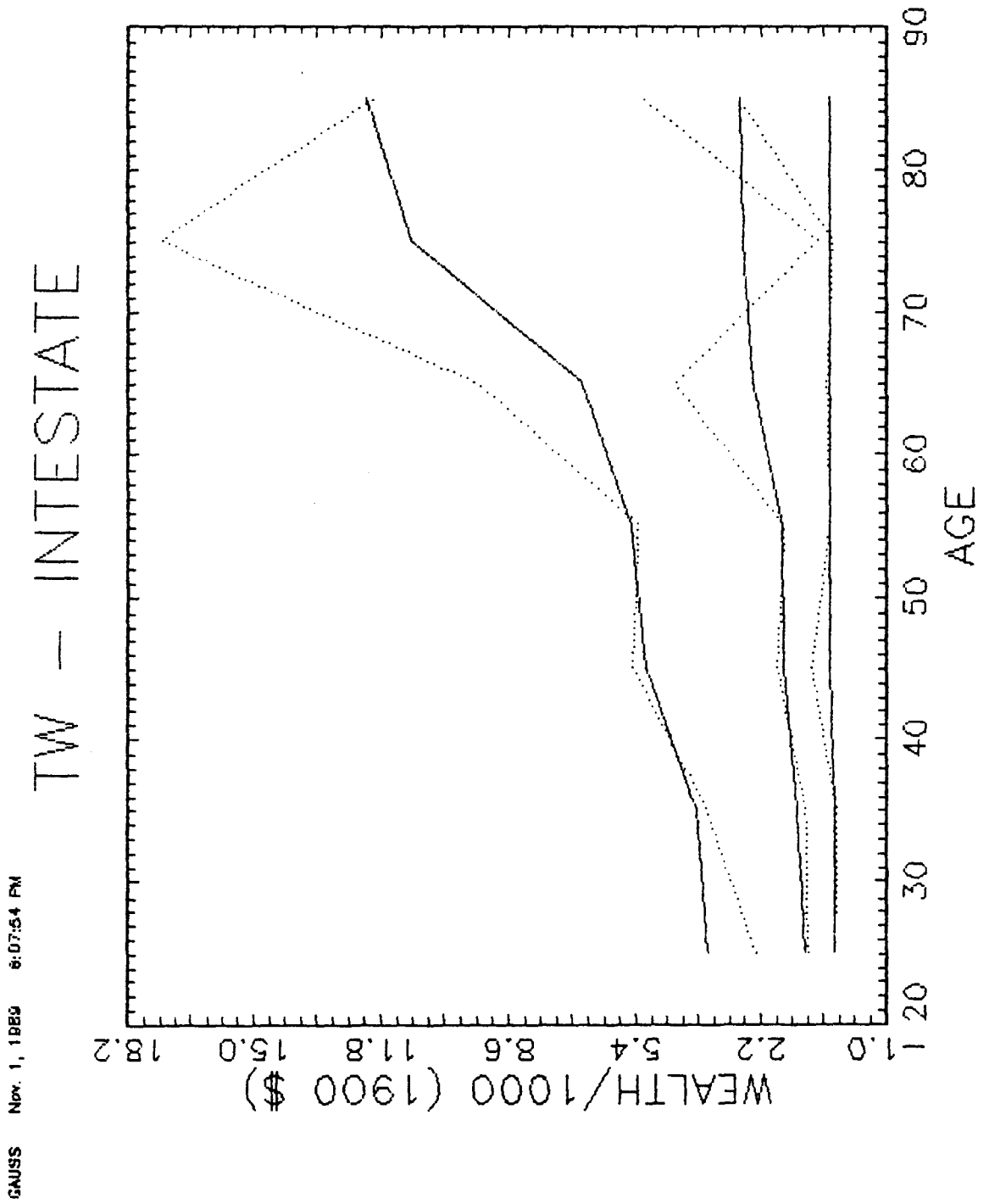


FIGURE 4.5.10

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
PROBATED DECEDENTS WHO WERE FARMERS

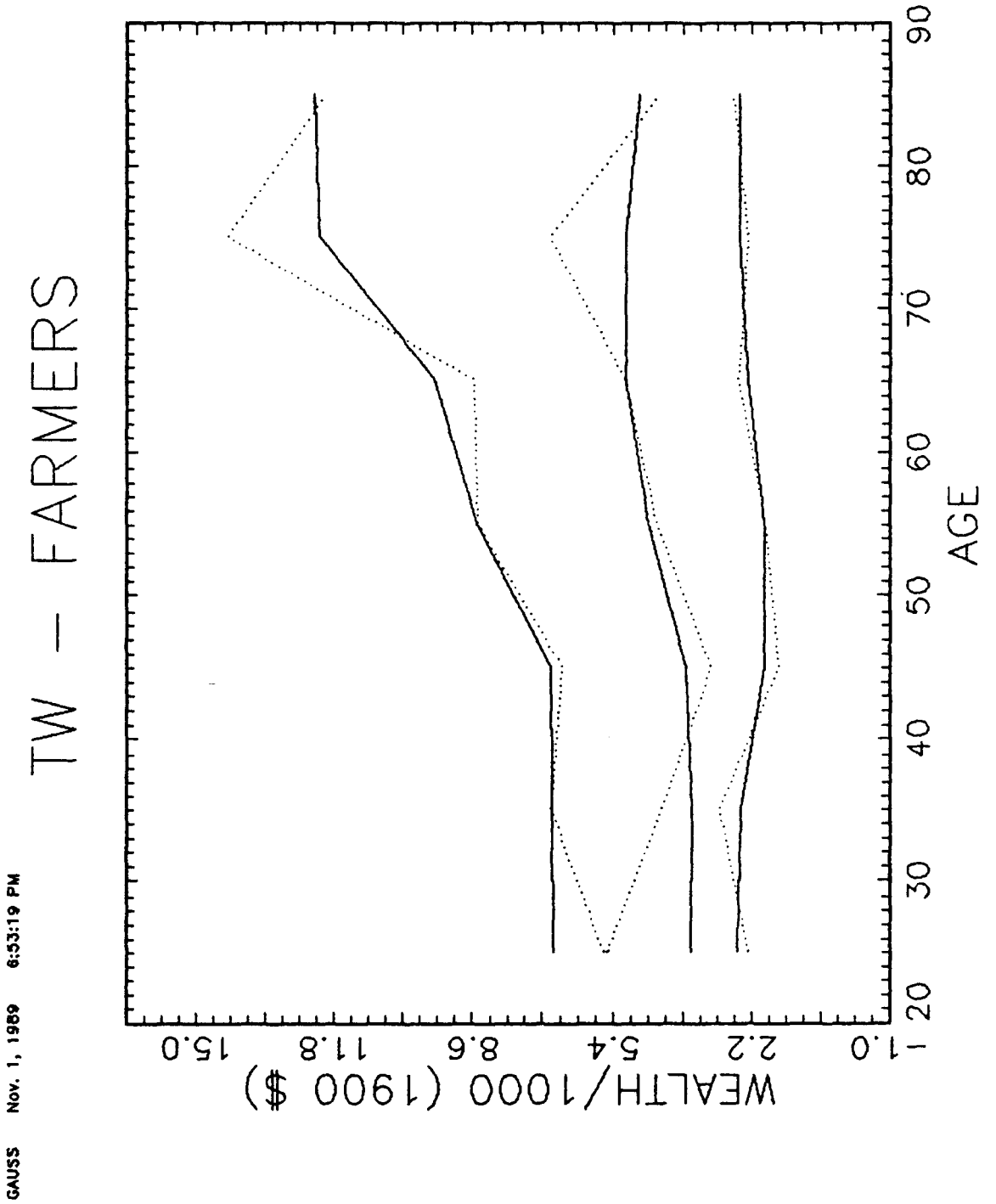


FIGURE 4.5.11

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
NON-FARMER PROBATED DECEDENTS

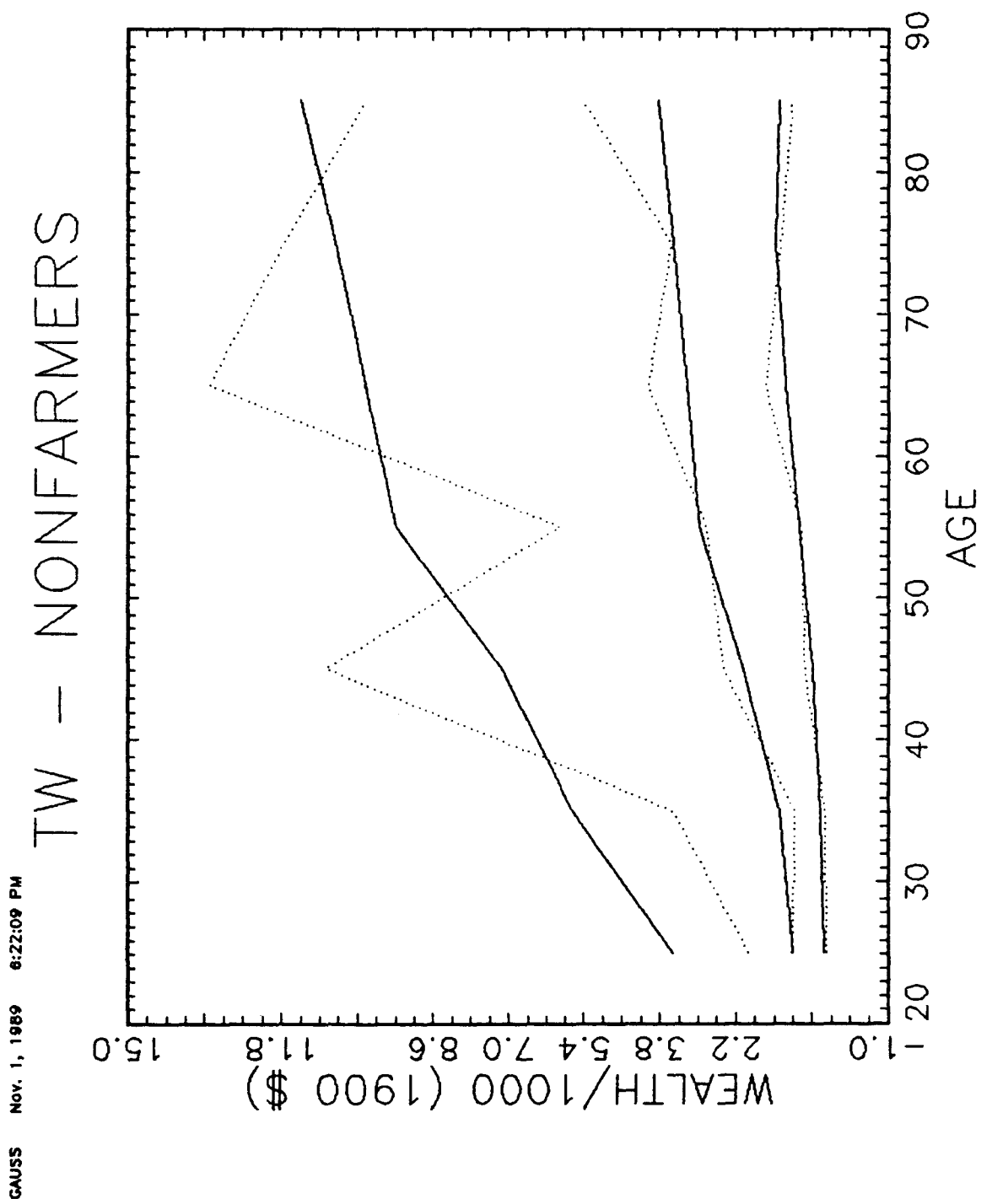
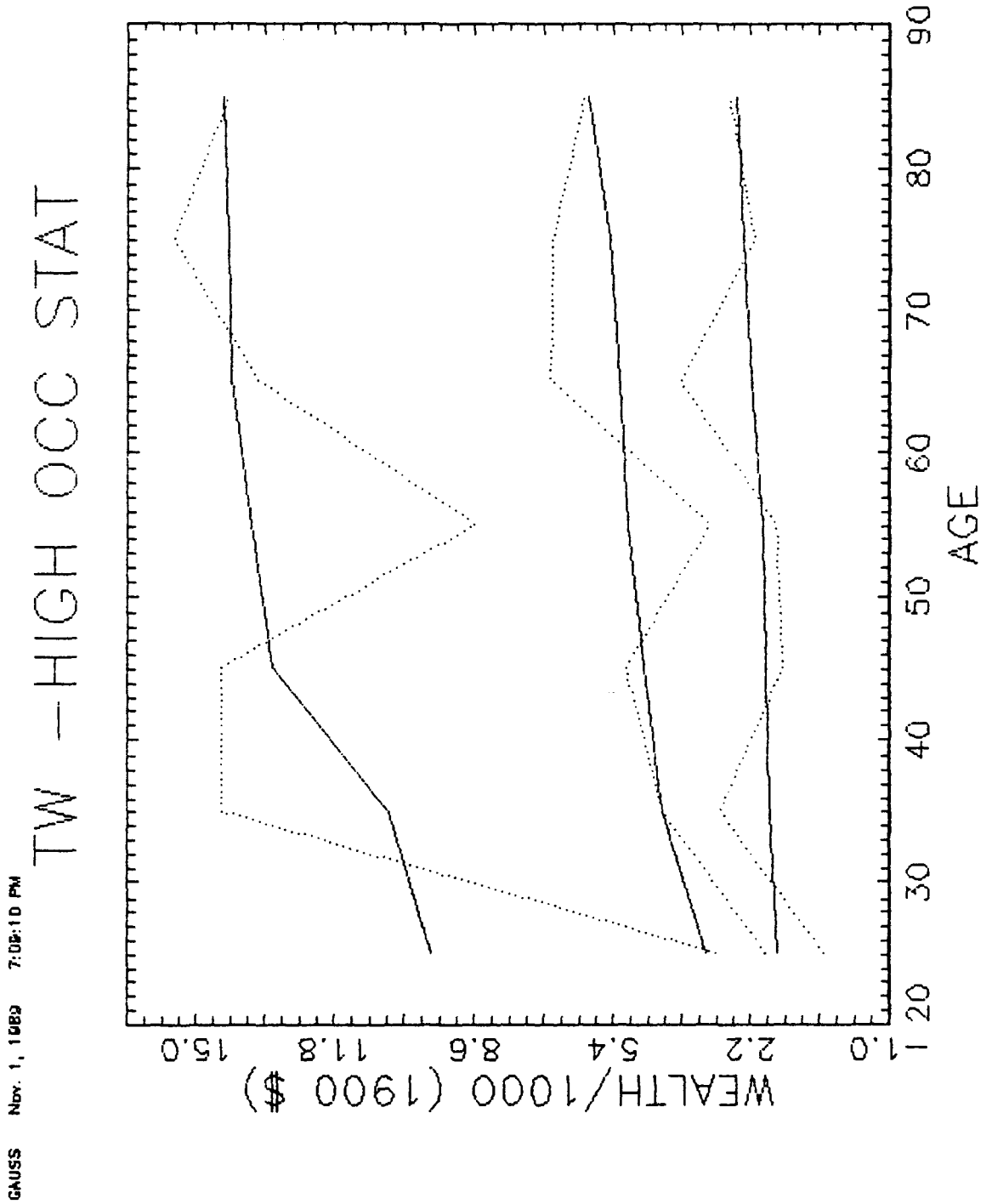


FIGURE 4.5.12

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
PROBATED DECEDENTS OF HIGH OCCUPATIONAL STATUSⁱ

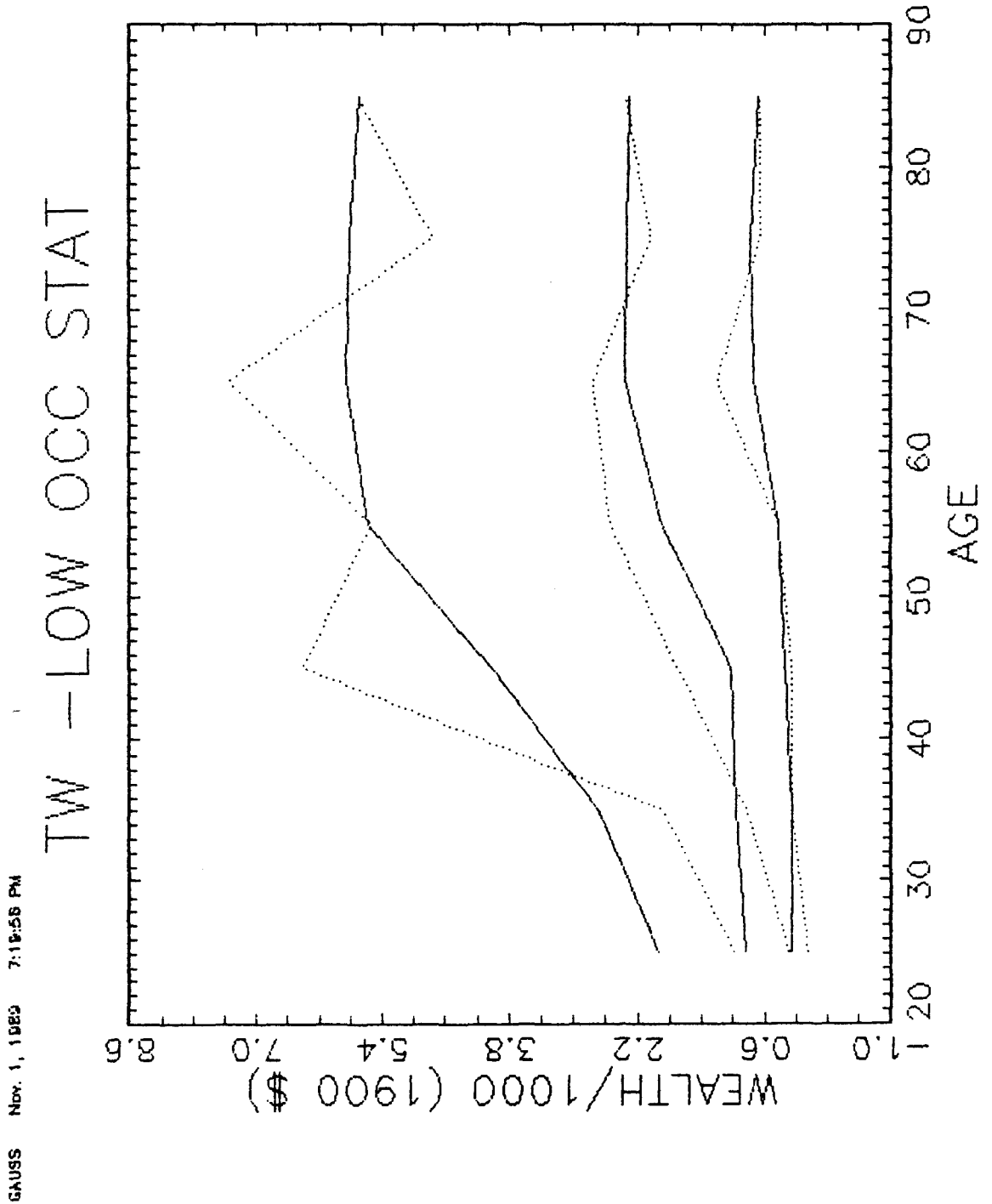


NOTES

i Katz Categories I and II.

FIGURE 4.5.13

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE, PROFILE:
PROBATED DECEDENTS OF LOW OCCUPATIONAL STATUSⁱ



ⁱ Katz Categories III-VI

FIGURE 4.5.14

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
MALE PROBATED DECEDENTS

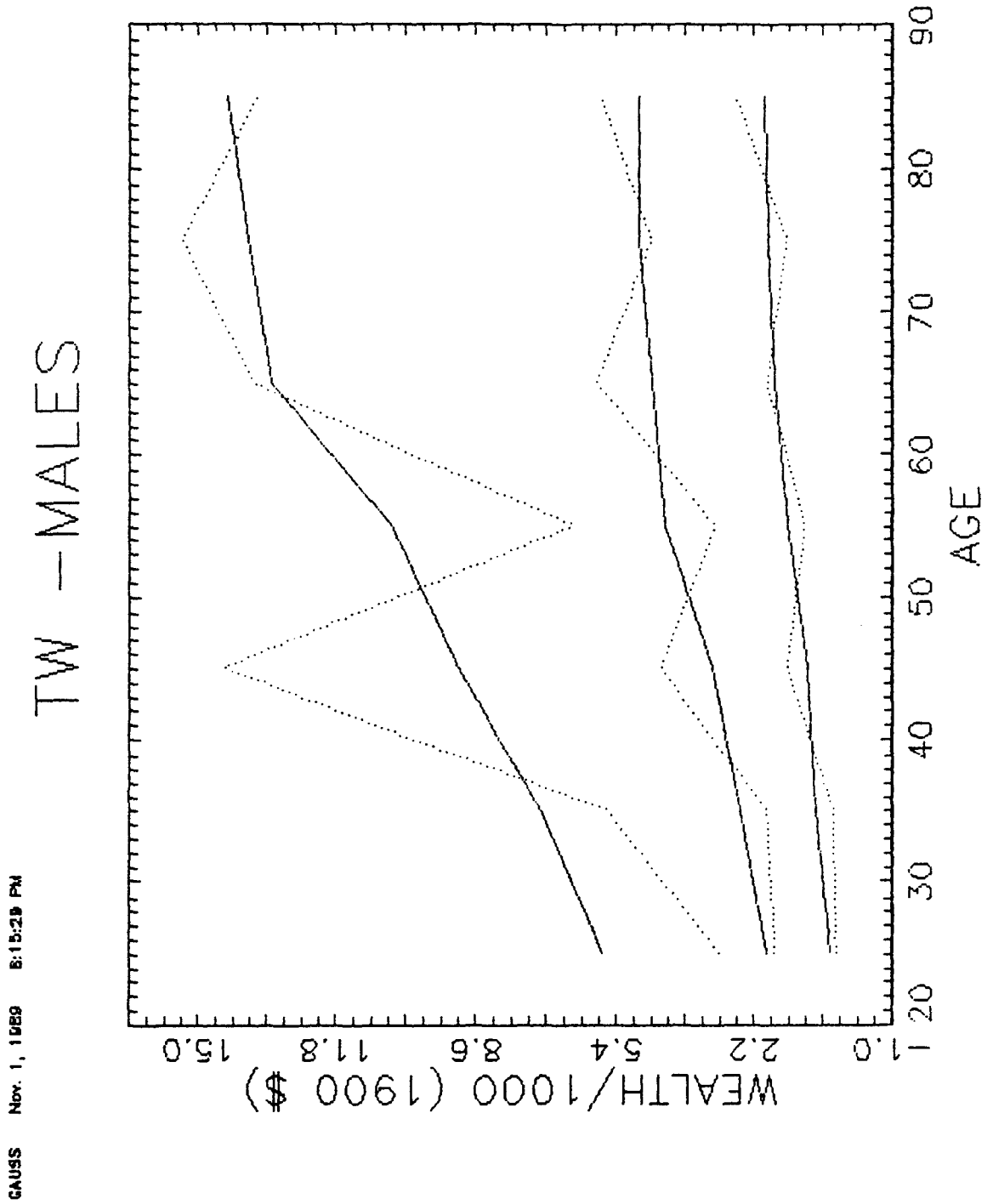


FIGURE 4.5.15

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
FEMALE PROBATED DECEDENTS

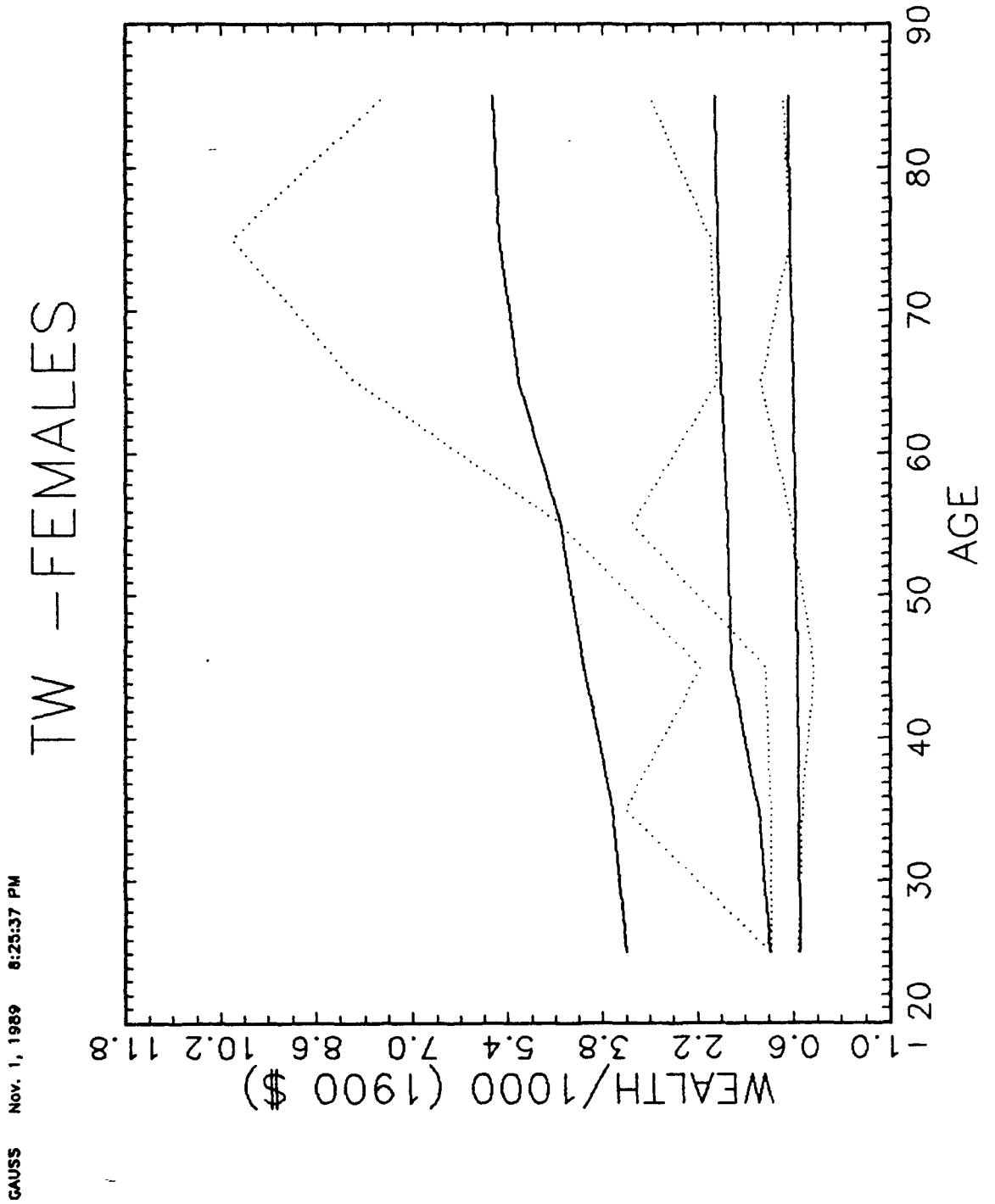


FIGURE 4.5.16

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
PROBATED DECEDENTS WHO OWNED REAL ESTATE

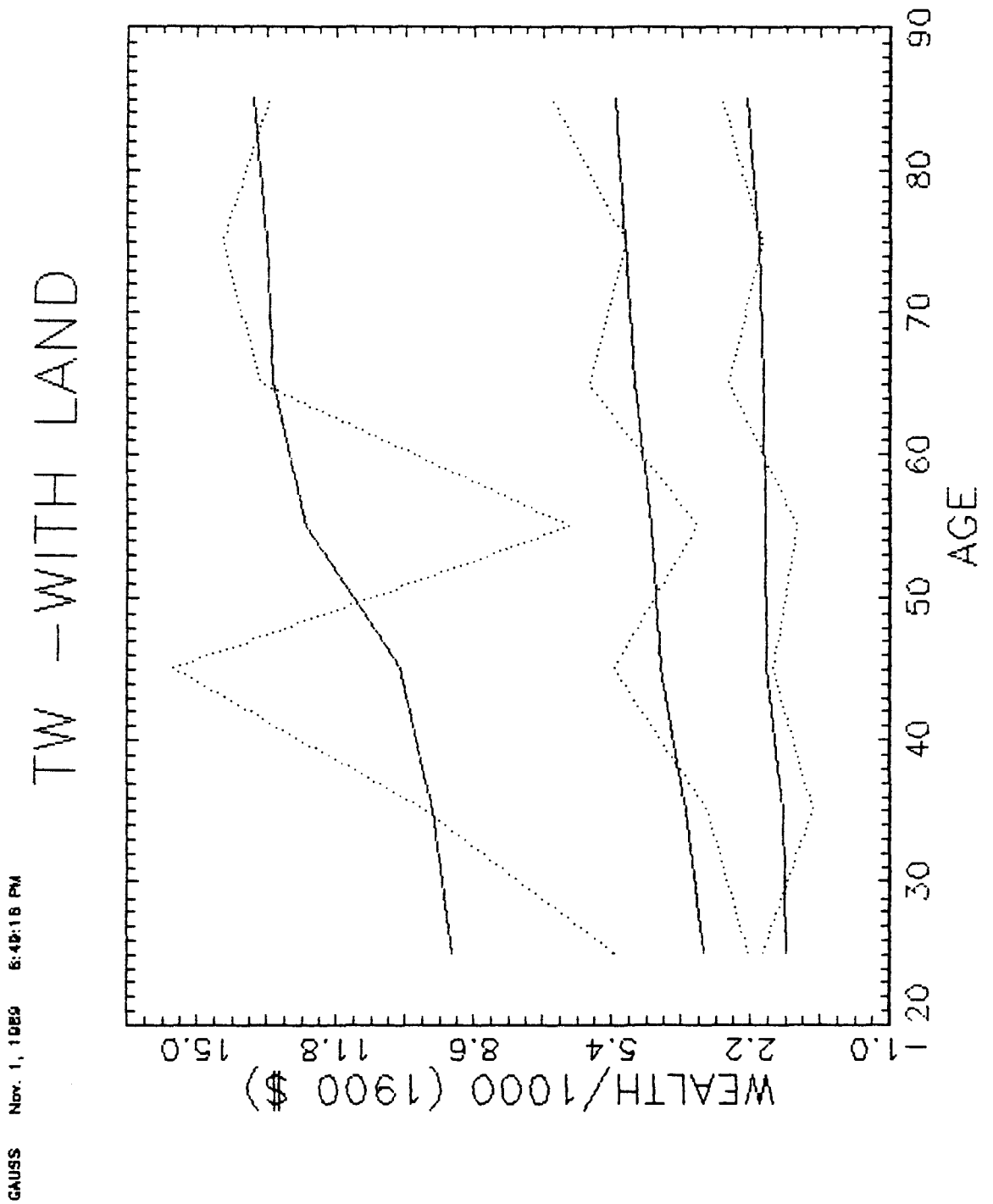
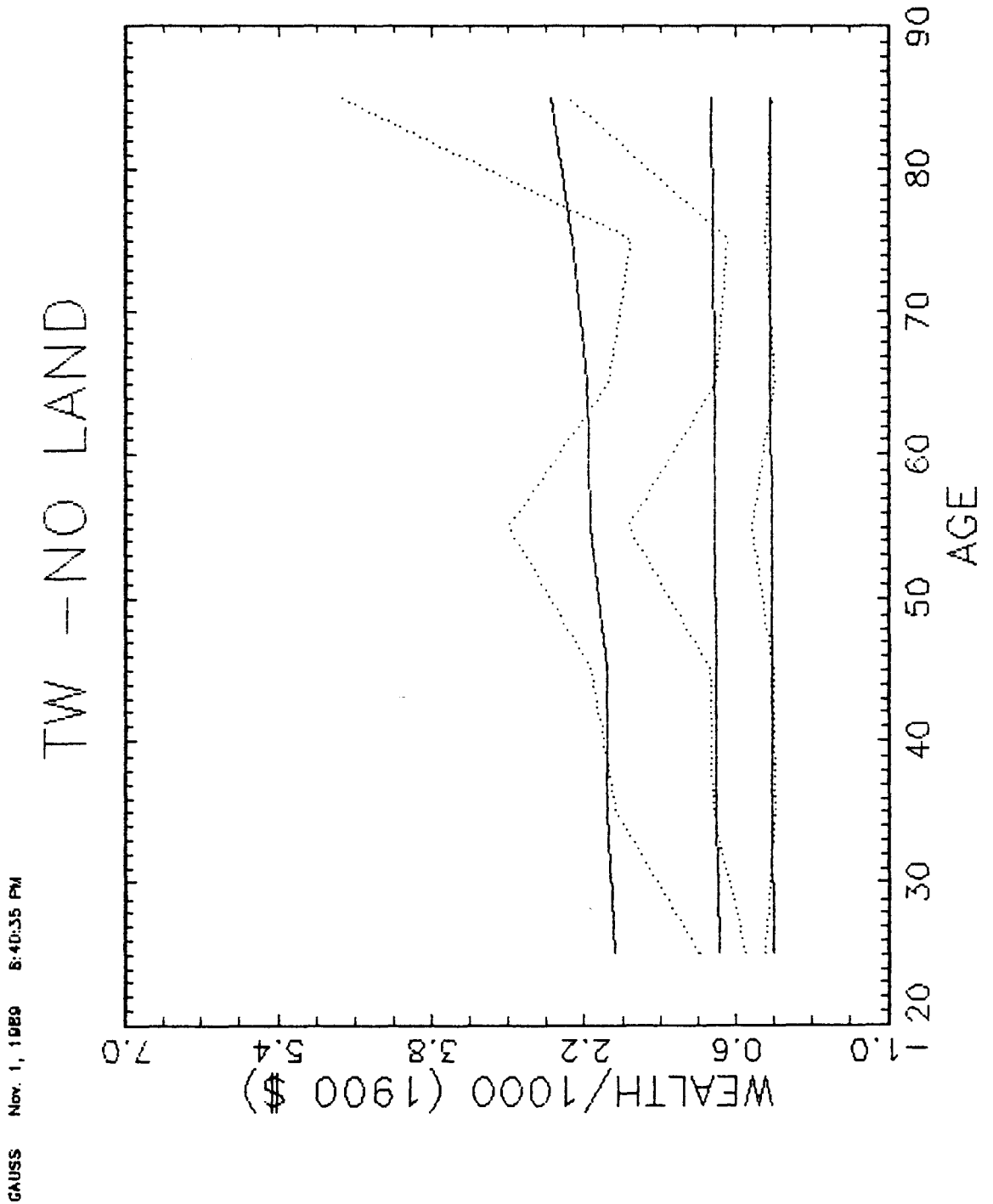


FIGURE 4.5.17

KERNEL-SMOOTHED QUANTILE ESTIMATES OF WEALTH-AGE PROFILE:
PROBATED DECEDENTS WHO OWNED NO REAL ESTATE



CHAPTER 5

WEALTH INEQUALITY IN WENTWORTH COUNTY 1872-1892

5.1 Introduction

This section of the thesis will utilize the final set of 283 probated decedents to address the question of how wealth was distributed in late nineteenth century Wentworth County. In Canadian economic history, the period 1872 to 1892 was one of economic decline followed by prosperity in the wake of the National Policy (1879). It would be of interest to see if this period was characterized by increasing or decreasing inequality in the distribution of wealth.

Equality of wealth is a contentious term mainly because it "has compelling social overtones as a standard which it is presumably feasible for society to attain."¹ Some see equality as the equal treatment of equals while others as the equalization of lifetime wealth, while others still as the equal opportunity of individuals to accumulate wealth.² If we define wealth as "the total extent, at a point in time, of an individual's access to resources,"³ then the equal distribution of wealth in a society would imply that all individuals have the same access to resources.

The measurement of inequality requires that we construct some quantitative measure of inequality that enables us to make comparisons amongst individuals at a point in time and over time. There are a variety of such measures but because

¹F.A. Cowell, *Measuring Inequality: Techniques for the Social Sciences* (New York, Halsted Press, John Wiley and Sons, 1977), p. 1.

²Cowell, 1977, p. 2.

³Lars Osberg, *Economic Inequality in the United States* (New York, M.E. Sharpe, 1984), p. 9.

they are often sensitive to the distributions they seek to describe, different measures can sometimes give rise to different results with the same distributions. For this reason, it is best when measuring wealth inequality to use a variety of measures.

One can calculate the share of total wealth received by each decile of the population and plot it in the form of a Lorenz curve. The Lorenz curve shows the relationship between the cumulative percentage of individuals and the cumulative percentage of total wealth that they hold as shown in Figure 5.1.1. If there were perfect wealth equality, the Lorenz curve would coincide with the 45° line. The greater the curvature of the Lorenz curve, the greater the degree of inequality.

The quantitative measure of inequality that can be derived from the Lorenz curve is the Gini coefficient. The Gini is defined as the area between the Lorenz curve and the 45° line divided by the area below the 45° line (i.e., from Figure 5.1.1, $G = A/(A+B)$), and takes on a value between 0 and 1 where 0 denotes perfect equality and 1 perfect inequality.⁴ The main disadvantage of the Gini is that a wealth redistribution from wealthy to poor individuals has a greater impact on reducing the size of the coefficient if the transfer to individuals at the bottom of the distribution is from the middle ranks as opposed to the top ones.

Another measure of inequality is the Coefficient of Variation which is defined as the standard deviation of a distribution divided by its mean.⁵ This

⁴For individual data, a convenient calculation formula for the Gini is:

$$G = 1 + 1/n - (2/n^2 \bar{W})(w_1 + 2w_2 + 3w_3 + \dots + nw_n)$$

where n is the number of individuals, w_i is individual wealth ranked from highest to lowest and \bar{W} is average wealth.

⁵We can write the Coefficient of Variation as:

procedure allows us to examine the dispersion of a wealth distribution, but the variance is normalized and hence allows us to make comparisons among different distributions. Whereas the Gini is sensitive to changes in the middle of the distribution, the Coefficient of Variation is sensitive to changes in the upper tail. The larger the Coefficient of Variation, the more unequal the distribution.

Another measure is the Theil Coefficient of Inequality which uses information theory to interpret individuals as events and their share of wealth as a probability and proceeds to construct an index from this.⁶ Like the Coefficient of Variation and the Gini, the Theil is scale free but it also is more sensitive to movements from the middle to the bottom of the wealth distribution. The principal advantage of the Theil is that it can be decomposed into between-group and within-group inequality components if desired. The Theil ranges from 0 to infinity, with larger values being associated with greater degrees of inequality.

There are other measures of inequality but the above measures are among the most commonly used.⁷ One needs to be aware of the various properties of the measure one is using because depending on where the changes occur in the wealth distribution, different inequality measures can yield slightly different results.

$$CV = (\sigma / \bar{x}) \times 100$$

⁶We can express the Theil Coefficient as:

$$T = (1/n) \sum_1^n (w_i / \bar{W}) \text{Log}(w_i / \bar{W})$$

Where there are n individuals each with wealth w_i and \bar{W} is average wealth.

⁷For other measures and a comprehensive discussion of measuring inequality, see Cowell, 1977.

The rest of this chapter will apply these measures in examining the distribution of wealth in Wentworth County. The next section will examine the distribution of wealth amongst the probated decedents. The analysis will then be extended to the population of Wentworth County through the use of the estate-multiplier technique. Other studies will then be examined for comparison purposes.

5.2 The Distribution of Wealth Amongst Probated Decedents

Tables 5.2.1 to 5.2.4 present data on the distribution of wealth amongst the probated decedents in the sample. In Table 5.2.1, one sees that in 1872, 57.8% of total wealth was in the hands of the top 10% of the wealth distribution. Moreover, the top 50% owned over 90% of total wealth. In 1882, the top 10% owned 48.5% of total wealth and in 1892, 58%. Throughout the period under consideration, the bottom 40% of the distribution never owned more than 6% of total wealth.

What is extremely noticeable about the wealth distribution over time both from the decile shares and the various inequality measures is the shift towards greater equality between 1872 and 1882. The share of the top 10% of the wealth distribution fell from 57.8% to 48.5%. That a decrease in inequality occurred amongst these probated decedents is supported by the decrease in the value of all three of the inequality measures.

It would appear that between 1872 and 1882 there was a significant upset in the distribution and pattern of wealth in Wentworth County. The significant decline in average wealth levels⁸ that was noted in Chapter 3 was apparently accompanied by a movement towards a more equitable distribution of wealth. The cost of this move towards greater equality appears to have been borne by the 1st

⁸Note that the decline affected average but not median wealth.

decile.

A relationship between average wealth levels and equality in the wealth distribution has been documented by William H. Newell in his study of probated decedents in nineteenth century Butler County, Ohio. Newell found that the average wealth of testators declined from the period 1803-19 to 1820-29 and then grew steadily to 1860-65, nearly quadrupling in four decades.⁹ The decline in wealth from 1803-19 to 1820-29 was initially accompanied by an increase in inequality. However, after 1830, wealth levels and inequality were positively correlated. Newell found that increasing land prices accounted for 80% of the increase in inequality as well as most of the growth in wealth.¹⁰

Similarly, it was found that wealth in the United States became more equally distributed either during periods of economic dislocation such as the Great Depression or when there was tampering with the market mechanism as during World War II.¹¹ From this one can only conclude that periods of economic decline and hardship are likely to have a levelling effect on wealth.

When the wealth of these probated decedents is broken down into real estate, financial assets and other personal property, similar patterns to those in total wealth are found. From Table 5.2.2 it can be seen that real estate wealth became more equally distributed between 1872 and 1882 but that inequality re-asserted itself by 1892. The top 20% of the real estate wealth distribution never owned less than 67.4% of real estate.

In 1872 the bottom 40% of real estate wealth holders owned 1% of total real estate wealth. This figure rose to 1.3% by 1882 and 2.6% by 1892. Although

⁹Newell, 1980, p. 99.

¹⁰Newell, 1980, p. 119.

¹¹A.B. Atkinson, *The Economics of Inequality*, 2nd ed. (Oxford, Clarendon Press, 1983), p. 174.

real estate ownership was becoming more dispersed by 1892, it was the rise in the share of the top 10% that seems to have led to greater inequality as the decile shares of the 2nd to 6th deciles all declined. The shares of the 3rd to 7th deciles had all risen between 1872 and 1882.

Financial assets and other personal property are presented in Tables 5.2.3 and 5.2.4. Although data for 1872 are not available, the rise in inequality between 1882 and 1892 again reflects previous patterns in total wealth and real estate. Financial assets and other personal property appear to have been much more unequally distributed than was real estate. In 1882, the top 20% owned 76.6% of financial assets and 79.6% of other personal property. These figures rose to 81.8% and 85.1% respectively in 1892.

All of these results point to a decrease in inequality between 1872 and 1882 and an increase in inequality between 1882 and 1892. Between 1872 and 1882, the share of wealth held by the top 10% declined and that of the other deciles increased whereas between 1882 and 1892, the process reversed itself.¹²

At this point, it would be appropriate to examine the wealth and asset composition of different deciles. The first decile (Top), the fifth decile (Middle), and the tenth decile (Bottom) of the total wealth distribution will be examined and their respective shares of real estate, financial assets and other personal property compared.

From an examination of Table 5.2.5, it can be seen that the top 10% experienced a decline in their share of total wealth between 1872 and 1882 but recovered by 1892. Their share of real estate rose steadily over the time period under consideration. Their share of financial assets and other personal

¹²The kernel-smoothed quantile estimates of the wealth-age profiles for 1872-1892 (See Figures 4.5.1-4.5.3) also provide some information on wealth distribution. The distance from the .8 to the .5 quantile to that from the .5 to .2 quantile can be interpreted as a ratio. From inspection, one can see that the ratio declines between 1872 and 1892 suggesting increasing equality of wealth distribution amongst the probated decedents.

property also rose between 1882 and 1892. From the Coefficient of Variation, it appears that financial assets were more unequally distributed than real estate or total wealth.

Coming to the middle 10% in Table 5.2.6, one sees that there is a tremendous drop in the share of wealth owned. The share of total wealth held by the middle 10% never exceeds 6.0% and the shares of other assets are similar. However, from the Coefficient of Variation, it can be seen that total wealth is more equally distributed within the 5th decile than it is within the 1st. This should be no great surprise given that the range is also much smaller.

Other differences between the 1st and 5th decile include the fact that the 5th decile held a greater proportion of its wealth in the form of real estate. Also, the decline in mean wealth between 1872 and 1882 affected the 1st decile but not the 5th. The 5th decile experienced an increase in its mean level of wealth between 1872 and 1882.

The bottom 10% are presented in Table 5.2.7 and it can be seen that they never accounted for more than one half of one percent of total wealth. The bottom 10% also held the smallest proportion of its wealth in the form of real estate when compared to the 1st and 5th deciles.

Wealth within the bottom 10% was distributed somewhat more unequally than the middle 10% but not as unequally as the top 10%. However, over time the Coefficient of Variation for the wealth of the bottom 10% declined, suggesting that there was increasing equality within this decile between 1872 and 1892. As a final note, the bottom 10% did not experience the 1872-1882 decline in mean wealth.

These results suggest that wealth was the most equally distributed within the middle 10% as opposed to either the top or bottom 10%. Real estate was beyond the reach of many in the bottom 10% but as time went by, the bottom 10% of the wealth distribution did manage to acquire more land and real estate took

up a rising share of their wealth portfolio.

The share of wealth held in land was highest in the 5th decile which suggests that although land was an important component of wealth amongst those in the top 10% of the wealth distribution, they held slightly more diversified wealth portfolios. The share of wealth held in financial assets was remarkably uniform over the three deciles under consideration which suggests that major differences in portfolio composition between the three deciles mainly occurred in the holding of real estate and other personal property.

With regards to the comparison groups examined in Chapter 3, coefficients of variation for total wealth have been calculated for each of them and presented in Table 5.2.8. It can be seen, from the table, that in all three periods, wealth was more equally distributed amongst rural as opposed to urban probated decedents, amongst females rather than males, amongst Catholics rather than Protestants and amongst farmers relative to non-farmers.

Within the testate/intestate, high/low occupational status and foreign/native-born comparison groups, there is fluctuation in inequality over time. In addition, between 1872 and 1882, four out of five groups that did not experience a decline in average wealth (i.e, rural, female, farmers and native-born, but not Catholics) experienced an increase in wealth inequality. Conversely, those that experienced the decline also saw a decrease in inequality. This again illustrates the positive relationship noted earlier between inequality and growth of wealth.

To summarize, wealth amongst these 283 probated decedents was very unequally distributed. The bottom 40% of the wealth distribution owned at best 6.0% of total wealth. The top 20% owned at the very least, 67.4% of total wealth. Despite a trend towards greater equality that occurred between 1872 and 1882, by 1892, the distribution of wealth amongst these probated decedents was slightly more unequal than at the outset of the period under

consideration.¹³ Within deciles, wealth tended to be more unequally distributed within the 1st and 10th deciles as opposed to the 5th.

5.3 Estate-Multiplier Estimates

Although information about the wealth of probated decedents is valuable, it only concerns itself with the wealth of the dead at a point in time and is not directly applicable to the entire living population. Making inferences about the wealth of the living population from the sample of probated decedents can only be done if the wealth of the dead can be adjusted in some manner so that it takes the living into account.

The estate-multiplier technique is a method by which the estates of those dying in a particular year can be used as a sample of the wealth of the population still alive at that time. If it can be assumed that the age and sex of those dying in a given year "are representative of the living population, the overall distribution may be obtained by 'blowing up' the estate data by a mortality multiplier equal to the reciprocal of the mortality rate."¹⁴ In the case of the Wentworth County data, given that less than one-third of adults who died had their estates probated, the multiplier technique would yield an estimate of the number of living individuals likely to probate an estate.

The estate-multiplier technique has a long history with initial applications in Britain being made in the 1920s.¹⁵ The method involves

¹³This is according to the standard measures of wealth equality such as Gini and Theil Coefficients. The kernel-smoothed quantile estimates of wealth-age profiles done in Chapter 4 suggest that the period from 1872-1892 was indeed one of increasing equality of wealth holding amongst the probated decedents.

¹⁴A.B. Atkinson and A.J. Harrison, *Wealth, Reviews of United Kingdom Statistical Sources*, Vol. VI., ed. W.F. Maunders (Oxford, Pergamon Press, 1978), p.9.

¹⁵Atkinson and Harrison, 1978, p. 28.

multiplying the wealth of a decedent by the reciprocal of his/her age-sex specific mortality rate. For example, suppose there is a 25-year-old probated decedent with \$1000 and the age-sex specific mortality rate is five deaths per thousand for this individual. The estate-multiplier technique says that there are 200 such individuals living each with a wealth of \$1000.

The age-sex specific mortality rates used to construct estate-multiplier estimates for this study were derived from death statistics for Wentworth County taken from the Census of Canada for the years 1871, 1881 and 1891. The data were available for each census division and therefore age-sex-location specific death rates could be constructed for the County. The death rates are presented in Table 5.3.1.

There are problems with the estate-multiplier technique. First, mortality can be affected by factors other than sex and age, such as occupation and social class. This is a problem shared by other studies.¹⁶ Second, a single year's death rates may have been affected by some exogenous factor such as an epidemic which could alter the results significantly from what they might have been. Moreover, deaths could have been unreported. These are problems one must acknowledge when utilizing historical data.¹⁷ Third, the use of estate records

¹⁶Atkinson and Harrison discuss the importance of using social-class adjusted mortality multipliers (Atkinson and Harrison, 1978, p. 33). Social-class adjusted mortality multipliers are not readily obtained for the late nineteenth century. Osberg and Siddiq do not use social-class adjusted mortality multipliers (Osberg and Siddiq, 1988, p. 145).

¹⁷Ontario had a system of civil registration of vital statistics in place after 1869 but the Registrar General calculated in 1870 that only a fifth of provincial deaths were reported. The reasons for this poor performance included public ignorance of the law, the lack of support from the medical profession and clergy and the failure of registrars to enforce the law. Census enumeration was also subject to errors but it consistently reported more deaths in Ontario than the province's civil registration system. Registered deaths exceeded emunerated deaths for the first time in 1911. See George Emery, "Ontario's Civil Registration of Vital Statistics, 1869-1926: The Evolution of an Administrative System," *Canadian Historical Review*, LXIV, 1983, p. 480 and p. 491. The mortality multipliers in this chapter are based on the superior Census data.

presumes that the wealthy do not anticipate their death "...with sufficient foresight to avoid death duties."¹⁸ This is not of concern for this study because, as was mentioned in Chapter 2, estate taxation in Ontario did not come into effect until 1892 and even then, the bulk of estates were able to escape taxation. Despite these problems, estate data is important for the study of past wealth holding because it represents one of the few instances where a detailed inventory of individual wealth was made.

More important is the issue of how to deal with those individuals who are not represented by the estate data. For example, in 1872, Wentworth County reports 10866 families. Each probated decedent can be treated as a head of family or household. When the estate-multiplier technique is applied, the 50 probated decedents yield 4062 'probate-type' households. This leaves 6804 heads of household or 'non-probate type' households for whom a wealth estimate has to be made.

There is no universally accepted method of assigning a value to the wealth of these individuals. There is likely to be an upper and a lower bound to any estimates. As a lower bound, I attached a value of 0 to all the estates of non-probate type individuals. This is not unreasonable as only those with wealth would likely probate an estate. For an individual not to have his/her estate probated meant that he/she died with either zero or very negligible wealth.¹⁹

As for the upper bound, a non-probate type individual could be assigned a value that would likely be based on the wealth of the probate population. For example, one could assume all non-probate types had wealth equal to the minimum

¹⁸Osberg, 1984, p. 41.

¹⁹It is also possible that an individual could die with negative net worth. Although a few of the individuals in this data set died with some debts outstanding, none of them had negative net worth.

wealth of the distribution of probated decedents. As another example, Osberg and Siddiq assign the non-probate types in their sample wealth of \$227 based on calculations that per household consumption in 1871 was \$127 and each household possessed about \$100 worth of apparel and ornament that may have escaped probate.²⁰ Alice Hanson Jones, on the other hand, assigns a value to the non-probate types in a region equal to a fraction of the average wealth of probate types in the region with the fraction assumed to be one-half for New England and one-quarter for the other regions.²¹

One can also use statistical techniques to extrapolate the frequency distribution of wealth holders and use the results as a means of assigning wealth to non-probate types. Osberg and Siddiq, for example, also fit their wealth distribution to a Paretian distribution and use the results to interpolate the wealth holdings of the lower tail where the non-probates are likely to be found.²² This method produces a set of intermediate results as the non-probates are neither all assigned the same level of wealth nor are they assumed all to be penniless.

In Tables 5.3.2-5.3.4, estate-multiplier estimates of the distribution of total wealth in Wentworth County are presented. Assumption A minimizes inequality by assuming that each non-probate type individual in the living

²⁰Osberg and Siddiq, 1988, p.147. This assumption was employed in this study to provide a comparison with the results generated by Osberg and Siddiq. (See Table 5.4.1.) There was no reason to believe that a large portion of wealth had gone unreported in Wentworth County given the comprehensiveness of the inventory categories. In the case of Wentworth County, it seemed reasonable to assume that the non-probate types either had zero wealth or did not differ significantly from those at the bottom of the wealth distribution for probate types.

²¹Jones, 1980, p. 349.

²²Osberg and Siddiq, 1988, p. 148. The functional form used was $\text{Ln}P(W) = a - b\text{Ln}W$ where $P(W)$ was the ranking of the probate-type wealth holder in the distribution and W was net worth.

population had an estate equal to that of the poorest individual in the distribution of probated decedents for that year.

Under assumption A, all non-probate type individuals were assigned a value of \$45 in 1872, \$150 in 1882 and \$61 in 1892. This represents the upper bound estimate. Assumption B, the lower bound estimate, assigns \$0 to each non-probate type. One can also interpret Assumption A as entailing minimum inequality and B maximum inequality in the distribution of wealth.

The estate-multiplier estimates present a picture of even greater inequality in the distribution of wealth. In 1872, the top 10% of the wealth distribution controlled 80% of total wealth while the bottom five deciles controlled at best 1.2% of total wealth.

The drop in inequality observed between 1872 and 1882 amongst the probated decedents also appears in the estate-multiplier estimates but it persists into the 1892 estimates. The top 20% of the wealth distribution owned 91.6-92.5% of total wealth in 1872, 86.9-91.0% in 1882 and 82.5-82.9% in 1892. The shares of the 3rd and 4th deciles increased from 7.5-7.6% in 1872 to 8.6-9.0% in 1882 to 11.0-11.1% in 1892. As for the bottom 10%, their share rose from a best of 0.2% in 1872 to a best of 0.7% in 1882 only to fall to 0.1% in 1892.

This movement towards greater equality in the distribution of wealth is also reflected in the measures of inequality. However, although the measures are unanimous in the movement towards greater equality between 1872 and 1882, there are mixed signals from 1882 to 1892 depending on whether Assumption A or B is used. This would suggest, if anything, that the wealth distribution likely was stable between 1882 and 1892.

Average wealth estimates derived from the estate-multiplier technique are also presented in each of the tables. Per family and per capita wealth declined between 1872 and 1882 but rose from 1882 to 1892. The implied annual growth rates of real per family and real per capita wealth between 1872 and 1892 were

1.59-1.61% and 1.74-1.76%. Given that the actual annual growth rate of real per capita GNP (in 1900\$) over the same period using Urquhart's estimates was 1.43%, it would seem that average wealth in Wentworth County was accumulating at a faster rate than the growth rate of per capita GNP.

Overall, these estate-multiplier estimates of wealth and the wealth distribution largely confirm the trends observed amongst the sample of 283 probated decedents, as one might expect. Over the period 1872-1882, they show decreasing average wealth and decreasing wealth inequality and from 1882-1892, increasing average wealth and a relatively stable wealth distribution with just a slight tendency towards greater inequality.

5.4 Comparisons with Other Studies

It is interesting to compare these wealth inequality results for Wentworth County with other studies done for late nineteenth century North America.

In Table 5.4.1 the 1872 Wentworth County probated decedents are compared with those for Nova Scotia studied by F.K. Siddiq. As can be seen, mean and median wealth were much higher for the Wentworth County probated decedents. The top 10% of the wealth distribution for Nova Scotia owned 65.83% of total wealth as opposed to 57.8% in Wentworth County. The share of the top 20% was 77.21% in Nova Scotia and 73.8% in Wentworth County. The bottom 40% in Nova Scotia owned 4.95% as opposed to 5.2% in Wentworth County.

Wealth amongst probated decedents in both Nova Scotia and Wentworth County was quite unequally distributed. Although the Theil Coefficient and the Coefficient of Variation suggest wealth was more unequally distributed in Wentworth County than Nova Scotia, the decile shares and Gini coefficient point to the opposite conclusion.

An additional comparison needs to be made with the estate-multiplier estimates, especially given the small size of the Wentworth County sample

relative to the Nova Scotia one. In Table 5.4.2, the estate-multiplier estimates for Wentworth County in 1872 are re-done using Siddiq's MAX-MIN inequality assumptions and methodology so that comparisons can be made. Under the MAX (maximum) inequality assumption, each probated decedent was assumed to own the value of his estate plus \$227 whereas non-probate types were assumed to own zero. Under minimum inequality, everyone owned the value of their estate, which was zero for the non-probate types, plus \$227.

Table 5.4.2 reveals that the wealth distributions in Wentworth County and Nova Scotia were remarkably similar. The top 20% in Nova Scotia owned 85.4-93.2% of total wealth whereas in Wentworth County, the top 20% owned 86.4-90.3%. The bottom 40% owned a maximum of 3.7% of total wealth in Nova Scotia and 2.8% in Wentworth County.

All three inequality measures under the MAX assumption suggest that Nova Scotia's wealth distribution was slightly more unequal than Wentworth County's. Under the MIN assumption there is no clear cut result. Overall, one would have to conclude that the degree of inequality in wealth holding was about the same.

The results for Wentworth County in 1872 are compared in Table 5.4.3 to results for mid-nineteenth century Hamilton derived by Michael B. Katz using assessment roll data. Katz's results for 1851 and 1861 are compared to both the distribution of probated decedents and the estate-multiplier estimates. The wealth distribution of Wentworth County probated decedents in 1872 turns out to be quite similar to that for Hamilton alone in 1851 and 1861.

Katz found that in 1851, one quarter of the population of Hamilton owned all of the real property within the city. The most affluent 10% of the population owned 88% of the wealth represented by real property and 60% of total assessed wealth. The poorest 40% owned about 6% of total assessed wealth.²³

²³Katz, 1975, p. 25.

In Table 5.4.4, the distribution of total assessed wealth from 1861 to 1891 for Toronto, as constructed by Gordon Darroch, is shown. Darroch also finds great inequality in the distribution of wealth.²⁴ The wealthiest 20% never had less than 65% of total assessed wealth and the poorest 40% never more than 8%. However, Darroch finds the period between 1871 and 1891 to be one of decreasing inequality as evidenced by the declining share of the first quintile, the rising share of the 2nd and 3rd quintiles and the declining Gini coefficient.

David Burley, in his study of the businessmen of Brantford, finds that there was only a slight increase in inequality between 1851 and 1880. From Table 5.4.5, one can see that there was an increase in wealth held by the top 10% of the distribution.

These Canadian results suggest that the wealth distribution in Wentworth County was similar to that in other parts of the country. Indeed, wealth distributions throughout North America during the nineteenth century all appear to be quite similar in their striking degree of inequality. Turning to an American example, Lee Soltow, using Census data for the United States, found that in 1850, 1860 and 1870, the top 1% of real property holders owned 30%, 29% and 24% of total real estate respectively. In 1860 and 1870, the top 1% of wealth holders owned 29% and 27% of total wealth respectively.²⁵ The value of the Gini Coefficient was 0.832 in 1860 for free men, 0.814 in 1870 for whites and 0.833 in 1870 for all.²⁶ The 1870 results parallel those for the estate-multiplier estimates for Nova Scotia (1871: 0.81-0.91) and Wentworth County (1872: 0.878-0.891).

In a separate study of wealth holding in Wisconsin, again using Census

²⁴Darroch, 1983, pp. 31-61.

²⁵Soltow, 1975, p. 96 and p. 99.

²⁶Soltow, 1975, p. 103.

data, Soltow also found evidence of great inequality in wealth holding. The value of the Gini Coefficient was 0.77 in 1850, 0.75 in 1860 and 0.74 in 1870.²⁷ About 30% of men were essentially propertyless.²⁸ Recall that in Wentworth County, under the estate-multiplier estimates derived using Assumption B, between 1872 and 1892, 30-50% of the household heads in the County were propertyless.

What is remarkable about these results is that they were all derived using different methods and yet all have yielded a relatively uniform set of results. The Wentworth County and Nova Scotia results are based on probate data, the Hamilton results by Katz and Darroch's Toronto results were derived using tax assessment roll data, and the Soltow results from U.S. Census data. All point to a very unequal distribution of wealth in the nineteenth century.

The question of course is why, despite the great inequality that marked late nineteenth century society, was there not more social upheaval? The answer can perhaps be found in some of the trends that marked wealth accumulation and distribution in late nineteenth century Wentworth County.

Recall that the wealth of the young in this sample of probated decedents increased at a relatively rapid rate between 1872 and 1892. The regression results for the final model reveal that with each additional year of age, wealth increases by about 8%. Moreover, the share of wealth held by those under age 40 was increasing over time as shown in Chapter 3.

Another indicator of improving economic position is the diffusion of real estate ownership over time. Whereas 68% of probated decedents reported real estate in 1872, by 1892, 78% did. Moreover, the increase in probated decedents reporting over \$1000 in real estate value did not appear to be occurring at the

²⁷ Soltow, 1971, p.10.

²⁸ Soltow, 1971, p. 5.

expense of those who reported less than \$1000. The proportion of probated decedents reporting less than \$1000 stayed relatively constant between 1872 and 1892.

With respect to real estate ownership, it should be noted that the increase in the proportion of wealth held as real estate marked both high and low wealth holders. Even the bottom 10% of the wealth distribution saw their ratio of real estate wealth to total wealth rise from 0 in 1872 to 37% in 1892. A society in which even those at the bottom of the wealth distribution were acquiring real estate was hardly ripe for social revolution.

Several other trends also appear amongst the set of probated decedents. First, the number of probated decedents in Wentworth County rose at a rate much greater than population growth. Whereas the percentage increase in estates probated between 1872 and 1892 was 220.8%²⁹ the population increased during the same period by 32.7%. The number of adult deaths, as recorded by the Census, increased by 108% during the same period³⁰. For more estates to be probated, it would mean that more individuals with some wealth were dying over this time period.

Second, there was an increase in wealth holding by women. There was an increase both in the percentage of female probated decedents and their average wealth levels. This is evidence that the institutional reforms in property laws mentioned in Chapter 2 were having an impact on both the extent of female property ownership as well as the level of female wealth.

From all of these trends, the conclusion must undoubtedly be that although the distribution of wealth in late nineteenth century Wentworth County was very unequal, there was some material improvement over time. The rigid social

²⁹This figure is based on the initial candidates for the sample. (1872-72, 1892-231)

³⁰Source: Census of Canada. Number of adult deaths: 1871-308, 1881-450, 1891, 640.

structure described by Katz was beginning to erode as real estate ownership became more prevalent, women made economic advances and the young took advantage of a changing economy to acquire wealth.

5.5 Conclusion

This section of the thesis has examined the distribution of wealth in Wentworth County between 1872 and 1892 as revealed by the final set of 283 probated decedents. Total wealth amongst the probated decedents was very unequally held with the top 10% of the wealth distribution never holding less than 48.5% of total wealth. Real estate, financial assets and other personal property were similarly concentrated in the hands of their respective top 10%.

When the wealth holding of the top, middle and bottom deciles was examined, it was seen that the decline in wealth between 1872 and 1882 affected the top decile only. The greater equality in the wealth distribution that came about between 1872 and 1882 seems to have occurred at the expense of the top 10%.

Use of the estate-multiplier technique led to the finding that total wealth was even more unequally distributed among the population as a whole than among the set of probated decedents alone. This is not surprising as in the general population one would expect to have at least some individuals with zero wealth. In 1872, the top 10% held about 80% of total wealth but this declined to about 70% by 1882. Unlike the figures for the probated decedents alone, the estate-multiplier estimates suggest that the decrease in inequality persisted into 1892. The period from 1872 to 1892 can therefore be interpreted as one of decreasing wealth inequality.

When the results for Wentworth County were compared with other studies many similarities were found. All of the studies reported great inequality in the distribution of wealth. In addition, the decline in inequality between 1872 and 1892 for Wentworth County was supported by evidence for Toronto. Thus, the

wealth distribution results for Wentworth County appear to be consistent with much of the evidence to date about nineteenth century wealth holding and distribution.

When examined in the context of nineteenth century history, these results for Wentworth County paint a picture of progress with respect to individual economic improvement. Although inequality was great, there was a slight tendency towards greater equality in wealth, more diffused real estate ownership and the accumulation of wealth over time.

FIGURE 5.1.1

THE LORENZ DIAGRAM

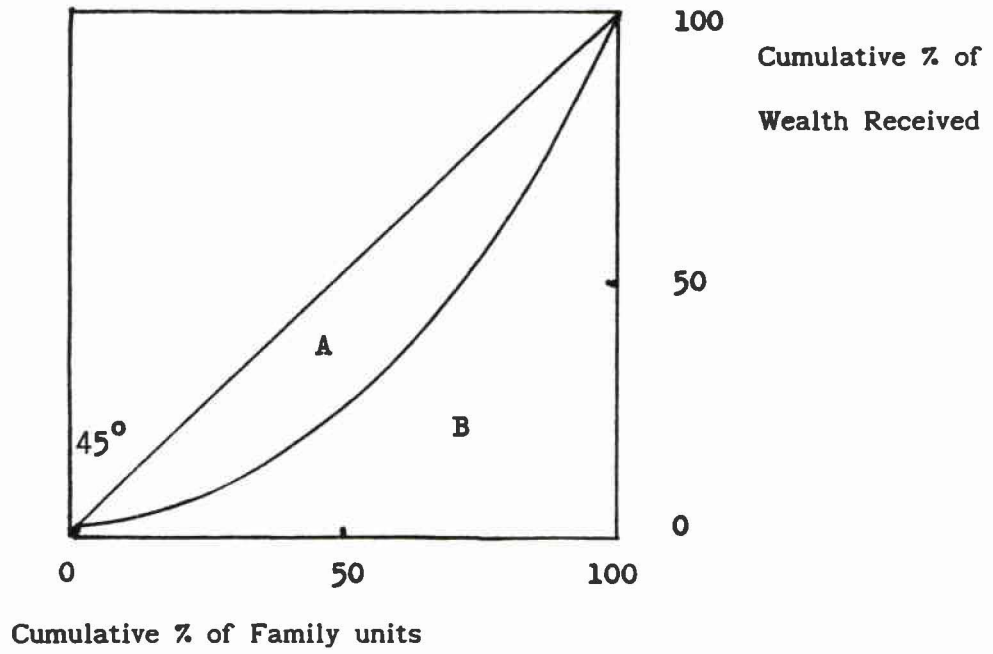


TABLE 5.2.1

DISTRIBUTION OF TOTAL WEALTH OF WENTWORTH COUNTY PROBATED DECEDENTS

1872-1892

(Decile shares in brackets beside cumulative figure)

	1872	1882	1892
Share of total wealth held by:			
Top 10%	57.8% (57.8)	48.5% (48.5)	58.1% (58.1)
20%	73.8 (16.0)	65.6 (17.1)	72.7 (14.6)
30%	81.9 (8.1)	76.9 (11.3)	81.0 (8.3)
40%	87.9 (6.0)	83.9 (7.0)	87.0 (6.0)
50%	91.8 (3.9)	89.4 (5.5)	91.6 (4.6)
60%	94.8 (3.0)	94.0 (4.6)	95.0 (3.4)
70%	97.2 (2.4)	96.9 (2.9)	97.3 (2.3)
80%	98.9 (1.7)	98.6 (1.7)	98.9 (1.6)
90%	99.8 (0.9)	99.6 (1.0)	99.7 (0.8)
100%	100.0 (0.2)	100.0 (0.4)	100.0 (0.3)
Gini Coefficient	0.686	0.619	0.696
Theil Coefficient	0.945	0.730	1.037
Coefficient of Variation	186.71	158.45	216.96
Range (nominal \$)	73,433	63,150	147,029
Mean (nominal \$)	8463.04	6721.82	10104.39
Median (nominal \$)	2700.00	3400.00	4000.00

TABLE 5.2.2

DISTRIBUTION OF REAL ESTATE AMONGST WENTWORTH COUNTY PROBATED DECEDENTS

(Decile shares in brackets)

	1872	1882	1892
Share held by: Top 10%	53.9% (53.9)	47.5 (47.5)	59.9 (59.9)
20%	74.8 (20.9)	67.4 (19.9)	74.7 (14.8)
30%	84.8 (10.0)	79.9 (12.5)	82.8 (8.1)
40%	91.1 (6.3)	88.3 (8.4)	89.1 (6.3)
50%	96.2 (5.1)	94.7 (6.4)	93.9 (4.8)
60%	99.0 (2.8)	98.7 (4.0)	97.4 (3.5)
70%	100.0 (1.0)	100.0 (1.3)	99.3 (1.9)
80%	-	-	100.0 (0.7)
90%	-	-	-
100%	-	-	-
Gini Coefficient	0.722	0.665	0.731
Theil Coefficient	1.058	0.838	1.215
Coefficient of Variation	197.99	154.93	260.93
Range	\$39,442.00	\$25,920.00	136,590.00
Mean (nominal \$)	\$3,244.03	\$2,814.49	\$6,063.96
Median (nominal \$)	\$1,110.00	\$1,560.00	\$2,400.00

TABLE 5.2.3

DISTRIBUTION OF FINANCIAL ASSET WEALTH AMONGST WENTWORTH COUNTY
PROBATED DECEDENTS

(Decile Shares in brackets)

	1882	1892
Share Held By: Top 10%	55.7% (55.7)	65.6% (65.6)
20%	76.6 (20.9)	81.8 (16.2)
30%	86.0 (9.4)	90.8 (9.0)
40%	91.5 (5.5)	95.8 (5.0)
50%	95.3 (3.8)	98.6 (2.8)
60%	97.9 (2.6)	99.6 (1.0)
70%	99.5 (1.6)	99.9 (0.3)
80%	99.9 (0.4)	100.0 (0.1)
90%	100.0 (0.1)	100.0 (0.0)
100%	100.0 (0.0)	100.0 (0.0)
Gini Coefficient	0.723	0.806
Theil Coefficient	1.035	1.554
Coefficient of Variation	192.99	320.44
Range (nominal \$)	31,846.00	79,845.00
Mean (nominal \$)	2601.43	2851.73
Median (nominal \$)	815.00	360.00

TABLE 5.2.4

DISTRIBUTION OF OTHER PERSONAL PROPERTY AMONGST WENTWORTH COUNTY
PROBATED DECEDENTS

(Decile Shares in brackets)

	1882	1892
Share Held By: Top 10%	68.5% (68.5)	75.3% (75.3)
20%	79.6 (11.1)	85.1 (9.8)
30%	87.3 (7.7)	91.1 (6.0)
40%	93.0 (5.7)	94.6 (3.5)
50%	96.6 (3.6)	96.9 (2.3)
60%	98.5 (1.9)	98.6 (1.7)
70%	99.7 (1.2)	99.6 (1.0)
80%	99.9 (0.2)	99.9 (0.3)
90%	100.0 (0.1)	100.0 (0.1)
100%	100.0 (0.0)	100.0 (0.0)
Gini Coefficient	0.784	0.839
Theil Coefficient	0.157	4.068
Coefficient of Variation	326.96	493.15
Range (nominal \$)	31360.00	67100.00
Mean (nominal \$)	1305.89	1188.72
Median (nominal \$)	400.00	235.00

TABLE 5.2.5

THE 1ST DECILE OF WEALTH DISTRIBUTION OF PROBATED DECEDENTS

		1872	1882	1892
Share of Total Wealth		57.8%	48.4%	58.1%
Share of Real Estate		52.2%	57.0%	58.7%
Share of Financial Assets		-	48.6%	54.1
Share of Other Personal Property		-	63.6%	64.6%
Ratio of Real Estate Wealth to Total Wealth		34.6%	36.0%	60.6%
Ratio of Financial Asset Wealth to Total Wealth		-	38.9	26.3
Total Wealth	CV	49.97	55.04	71.84
	Range (nominal \$)	56060.80	47590.00	125153.00
Real Estate	CV	79.34	64.40	107.00
	Range (nominal \$)	31192.12	22820.00	127390.00
Financial Assets	CV	-	83.96	161.40
	Range	-	31561.00	79844.58
Mean Wealth (nominal \$)		48937.42	32134.04	60258.93

TABLE 5.2.6

THE 5TH DECILE OF WEALTH DISTRIBUTION OF PROBATED DECEDENTS

	1872	1882	1892
Share of total wealth	3.96%	5.57%	4.62%
Share of real estate	4.66%	6.78%	5.06%
Share of financial assets	-	2.64%	2.70%
Share of other personal property	-	2.68%	4.48%
Ratio of Real estate wealth to Total Wealth	45.1%	51.0%	65.7%
Ratio of Financial Asset Wealth To Total Wealth	-	39.8%	27.4%
Total Wealth CV	5.78	6.85	7.91
Range (nominal \$)	447.00	589.90	1436.00
Real Estate CV	56.82	58.49	48.5
Range (nominal \$)	1913.00	3399.00	4640.00
Financial Assets CV	-	79.2	120.4
Range (nominal \$)	-	3000.00	4685.00
Mean wealth (nominal \$)	3353.00	3697.16	4790.55

TABLE 5.2.7

THE 10TH DECILE OF WEALTH DISTRIBUTION OF PROBATED DECEDENTS

	1872	1882	1892
Share of total wealth	0.24%	0.43%	0.33%
Share of real Estate	0.0%	0.18%	0.20%
Share of financial assets	-	0.47%	0.33%
Share of other personal property	-	0.87%	0.99%
Ratio of real estate wealth to total wealth	0	17.72%	37.0%
Ratio of financial assets to total wealth	-	42.42	27.8
Total Wealth			
CV	81.1	49.5	39.7
Range(nominal \$)	395.00	350.00	439.00
Financial Assets			
CV	-	148.00	130.84
Range(nominal \$)	-	476.40	300.00
Mean Wealth (nominal \$)	203.00	282.21	272.09

TABLE 5.2.8

COEFFICIENTS OF VARIATION FOR WEALTH OF PROBATED DECEDENT SUB-GROUPS

	1872	1882	1892
URBAN	202.2	179.0	218.0
RURAL	97.3	120.0	97.1
TESTATE	161.1	148.5	202.3
INTESTATE	246.3	173.6	134.9
MALE	176.5	142.8	202.9
FEMALE	66.5	124.3	104.6
PROTESTANT	180.5	153.1	216.9
CATHOLIC	84.7	80.4	179.2
FARMERS	79.2	149.3	101.4
NON-FARMERS	190.9	186.4	229.7
HIGH OCC STATUS	171.4	141.4	176.3
LOW OCC STATUS	237.3	163.7	159.5
FOREIGN BORN	178.5	148.8	215.0
NATIVE	91.7	184.5	221.0

TABLE 5.3.1

WENTWORTH COUNTY AGE-SEX-LOCATION SPECIFIC MORTALITY RATES

(Deaths per thousand)

Source: Census of Canada, 1871, 1881,1891.

1871

Age Bracket	Wentworth South ⁱ		Wentworth North ⁱⁱ		Hamilton	
	M	F	M	F	M	F
11-21	2.95	6.41	1.46	3.23	4.85	4.09
21-31	3.46	5.85	8.09	3.93	5.47	6.04
31-41	7.56	8.37	4.50	10.75	14.96	2.81
41-61	5.48	6.49	11.69	11.44	20.02	12.56
61-81	36.75	19.11	36.25	41.56	45.45	24.63
81+	187.5	160.0	90.91	107.14	190.48	136.36

1881

11-21	1.78	3.09	2.04	2.72	4.71	2.43
21-31	7.04	9.75	3.68	6.57	5.78	5.97
31-41	11.75	7.85	6.69	4.42	11.13	9.33
41-61	18.58	6.28	9.88	7.56	13.32	9.59
61-81	42.31	46.88	46.74	43.23	50.35	31.89
81+	187.5	125.0	135.14	157.89	241.38	186.05

1891

15-24	6.26	1.73	2.64	5.45	6.62	4.90
25-34	5.39	5.40	2.86	8.39	5.79	6.00
35-44	11.09	8.57	4.92	8.63	5.58	7.53
45-54	12.68	11.98	3.31	11.35	19.07	13.34
55-64	16.13	23.72	20.62	16.24	21.88	20.93
65-74	32.26	58.22	21.94	60.81	64.25	52.10
75+	118.88	104.35	110.39	104.84	201.22	104.35

NOTES

ⁱ

Saltfleet, Binbrook, Barton, Glanford & Ancaster Townships

ⁱⁱ

Beverly, West Flamboro & East Flamboro Townships & Town of Dundas

TABLE 5.3.2

ESTATE-MULTIPLIER ESTIMATE OF THE DISTRIBUTION OF TOTAL WEALTH
IN WENTWORTH COUNTY IN 1872

(Decile shares in brackets)

	Assumption A ⁱ %	Assumption B %
Share Held By: Top 10%	80.3 (80.3)	81.1 (81.1)
20%	91.6 (11.3)	92.5 (11.4)
30%	97.6 (6.0)	98.6 (6.1)
40%	99.1 (1.5)	100.0 (1.5)
50%	99.3 (0.2)	100.0 (0.0)
60%	99.5 (0.2)	-
70%	99.7 (0.2)	-
80%	99.9 (0.2)	-
90%	100.1 (0.2) ⁱⁱ	-
100%	100.3 (0.2) ⁱⁱ	-
Gini Coefficient	0.878	0.891
Theil Coefficient	2.082	2.109
Coefficient of Variation	3.73	3.77
Mean (Per Family) Nominal\$	2909.33	2881.15
1900\$	2576.11	2552.02
Mean (Per Capita) Nominal\$	548.84	543.53
1900\$	485.98	481.44
Median (Per Family)Nominal\$	45.00	0.0

NOTES

ⁱ
Assumption A - non-probates assigned \$45 each; Assumption B - non-probates assigned \$0 each.

ⁱⁱ
Cumulative distribution does not sum exactly to 100 because of rounding.

TABLE 5.3.3

ESTATE-MULTIPLIER ESTIMATE OF THE DISTRIBUTION OF TOTAL WEALTH
IN WENTWORTH COUNTY ONTARIO IN 1882

(Decile shares in brackets)

	Assumption A ⁱ %	Assumption B %
Share held by: Top 10%	70.3 (70.3)	73.6 (73.6)
20%	86.9 (16.6)	91.0 (17.4)
30%	93.1 (6.2)	97.5 (6.5)
40%	95.5 (2.4)	100.0 (2.5)
50%	96.2 (0.7)	100.0 (0.0)
60%	96.9 (0.7)	-
70%	97.6 (0.7)	-
80%	98.3 (0.7)	-
90%	99.0 (0.7) ⁱⁱ	-
100%	99.7 (0.7) ⁱⁱ	-
Gini Coefficient	0.796	0.856
Theil Coefficient	1.620	1.741
Coefficient of Variation	2.74	2.86
Mean (Per family) Nominal\$	2024.44	1934.58
1900\$	1820.81	1741.28
Mean (Per Capita) Nominal\$	393.17	375.72
1900\$	353.63	338.18
Median (Per family)	150.00	0

NOTES

ⁱ

Assumption A - non-probates assigned \$150 each; Assumption B - non-probates assigned \$0 each.

ⁱⁱ

Cumulative distribution does not sum exactly to 100% because of rounding.

TABLE 5.3.4

ESTATE-MULTIPLIER ESTIMATE OF THE DISTRIBUTION OF TOTAL WEALTH
IN WENTWORTH COUNTY IN 1892

(Decile shares in brackets)

	Assumption A ⁱ %	Assumption B %
Share held by: Top 10%	70.5 (70.5)	70.8 (70.8)
20%	82.5 (12.0)	82.9 (12.1)
30%	90.5 (8.0)	90.9 (8.0)
40%	95.5 (5.0)	96.0 (5.1)
50%	98.2 (2.7)	98.7 (2.7)
60%	99.3 (1.1)	99.8 (1.1)
70%	99.7 (0.4)	100.2 (0.4) ⁱⁱ
80%	99.8 (0.1)	-
90%	99.9 (0.1)	-
100%	100.0 (0.1)	-
Gini Coefficient	0.809	0.814
Theil Coefficient	1.572	1.580
Coefficient of Variation	2.76	2.77
Mean (Per Family) Nominal\$	5580.72	5562.55
1900\$	5366.15	5348.68
Mean (Per capita) Nominal\$	1127.31	1123.64
1900\$	1083.97	1080.44
Median (Per Family) Nominal\$	1000.00	1000.00

NOTES

ⁱ

Assumption A - non-probates assigned \$61 each; Assumption B- non-probates assigned \$0 each.

ⁱⁱ

Cumulative distribution does not sum exactly to 100.0% because of rounding.

TABLE 5.4.1

WEALTH DISTRIBUTION OF PROBATED DECEDENTS: NOVA SCOTIA, 1871ⁱ AND
WENTWORTH COUNTY, 1872

	Nova Scotia, 1871	Wentworth County, 1872
Share Held By:		
1st decile	65.83	57.8
2nd decile	11.38	16.0
3rd decile	6.89	8.1
4th decile	4.72	6.0
5th decile	3.53	3.9
6th decile	2.70	3.0
7th decile	1.99	2.4
8th decile	1.47	1.7
9th decile	1.09	0.9
10th decile	0.40	0.2
Gini Coefficient	0.74	0.67
Theil Coefficient	0.88	0.95
Coefficient of Variation	2.93	186.71
Mean (nominal\$)	5639.82	8463.04
Median (nominal\$)	1714.71	2700.00
Sample size	346	50

NOTES

ⁱ
Siddiq, 1988, p.141.

TABLE 5.4.2

WEALTH INEQUALITY IN 19TH CENTURY CANADA: A COMPARISON OF ESTATE MULTIPLIER ESTIMATES FOR NOVA SCOTIA, 1871ⁱ AND WENTWORTH COUNTY, 1872

Share Held by:	Nova Scotia, 1871		Wentworth County, 1872	
	MAX	MIN	MAX	MIN
1st decile	83.5	76.0	78.6	75.2
2nd decile	9.7	9.4	11.7	11.2
3rd decile	4.8	5.1	6.6	6.3
4th decile	2.1	2.6	2.2	2.1
5th decile	0.1	1.8	0.0	0.7
6th decile	0.0	1.4	0.0	0.7
7th decile	0.0	1.2	0.0	0.7
8th decile	0.0	1.0	0.0	0.7
9th decile	0.0	0.8	0.0	0.7
10th decile	-0.2	0.7	0.0	0.7
Gini Coefficient	0.91	0.81	0.88	0.83
Theil Coefficient	2.33	1.88	2.05	1.91
Coefficient of Variation	4.90	4.39	3.67	3.51
Mean ⁱⁱ (Per Family)	3045.49	3440.82	2966.01	3108.15
Mean (Per capita)	540.36	610.51	559.54	586.35
Median (Per family)	0.0	542.16	0.0	272.00

NOTES

ⁱ

Source: Osberg and Siddiq, 1988, p. 147.

ⁱⁱ

All values in nominal \$.

TABLE 5.4.3

KATZ DISTRIBUTION OF TOTAL ASSESSED WEALTHⁱ, HAMILTON, 1851, 1861
(QUINTILE SHARES IN BRACKETS)

SHARE HELD BY:	1851	1861	WENTWORTH CO. ⁱⁱ 1872
TOP 10%	60% (60%)	63% (63%)	57.8%
20%	74% (14%)	77% (14%)	73.8%
40%	87% (13%)	90% (13%)	87.9%
60%	94% (7%)	95% (5%)	94.8%
80%	98% (4%)	99% (4%)	98.9%
100%	100% (2%)	100% (1%)	100%

NOTES

i

Source: Katz, 1975, p. 54.

ii

Probated decedents only.

TABLE 5.4.4

WEALTH INEQUALITY IN TORONTO 1861-1891ⁱ

(Quintile shares in brackets)

	1861	1871	1881	1891
Share of Top: 20%	67.7(67.7)	72.3(72.3)	70.6(70.6)	65.4(65.4)
40%	85.1(17.4)	87.3(15.0)	84.7(14.1)	82.6(17.2)
60%	93.6(8.5)	95.1(7.8)	93.4(8.7)	93.1(10.5)
80%	98.2(4.6)	99.8(4.7)	99.8(5.4)	100.0(6.9)
100%	99.8(1.6)	100.0(0.2)	100.0(1.3)	100.0(0.1)
GINI	0.656	0.690	0.661	0.624

NOTES

ⁱ

Source: Darroch, 1983, p. 49.

TABLE 5.4.5

DISTRIBUTION OF ASSESSED WEALTH OF BRANTFORDⁱ BUSINESSMEN BY PERCENTILE

	1851	1861	1871	1880
Share Held By:				
Top 1%	21%	25	21	24
10%	52	53	53	58
20%	67	69	69	72
40	87	84	86	86
60	95	92	94	94
80	99	97	98	98
100	100	100	100	100
Gini Coefficient	.64	.62	.65	.65

NOTES

ⁱ

Source: Burley, 1983, pp. 286-287.

CHAPTER 6

CONCLUSION

This thesis is a study of wealth holding in late nineteenth century Wentworth County, Ontario using a set of historical micro-data which was constructed from the probate records of the Wentworth County Surrogate Court, the Census of Canada and municipal tax assessment rolls. There were a total of 283 probated decedents in the final sample with 50 from 1872, 79 from 1882 and 154 from 1892.

The individuals in the data set, relative to the general population of Wentworth County, were much older, of higher socio-economic status, more Protestant, and showed a greater tendency to be foreign-born. The probated decedents were also overwhelmingly male but the proportion who were female gradually rose between 1872 and 1892.

An examination of basic trends and patterns in wealth holding revealed that there was a decline in per capita wealth between 1872 and 1882, coinciding with a period of economic depression in Canada, with a recovery by 1892. The decline in per capita wealth was borne by urban as opposed to rural probated decedents, non-farmers as opposed to farmers, males relative to females, Protestants rather than Catholics, and the foreign-born rather than the native-born. Those groups which withstood the decline in per capita wealth generally held a greater proportion of their wealth in real estate relative to their comparison group.

There was an increase in the incidence of real estate ownership between 1872 and 1892. As well, the share of wealth held as real estate rose. However, the proportion of individuals reporting ownership of financial assets and other personal property declined between 1882 and 1892. The share of wealth held as

financial assets and other personal property also declined during this period.

Econometric techniques were utilized to examine the data for evidence of target-bequest or life-cycle saving. Any evidence of life-cycle saving could have been used to support the existence of a late nineteenth century transition to life-cycle saving in Canada similar to that suggested for the United States by Roger Ransom and Richard Sutch.

From the results obtained, real wealth was positively and significantly related to high occupational status, age and the number of children a probated decedent had, and negatively and significantly related to age-squared and low occupational status. In addition, there appeared to be a definite increase in wealth over time which could be attributed to economic growth. Real estate holdings and the number of children were found to be positively and significantly related as was the quantity of land held by farmers and their number of children, but no significant negative relationship emerged between financial asset holding and the number of children.

These results can be interpreted as support for the existence of a bequest motive for saving amongst the probated decedents of Wentworth County. The only support for life-cycle saving came from the existence of a hump-shaped wealth-age profile but the evidence was not entirely convincing because the rate of decumulation after peak wealth was low and the concave wealth-age profile tended to disappear when separate asset equations were run and when the data were broken up into groups. On the other hand, there was a positive and significant relationship between both the presence and the number of children, and the level of terminal wealth.

In addition, kernel-smoothed quantile estimates of wealth-age profiles were examined which revealed no evidence of a hump-shaped wealth-age profile. These results suggested that the hump-shaped wealth-age profile emanating from the regression equations may have been a product of functional form as well as any

underlying life-cycle saving behaviour.

The distribution of wealth was then examined using a variety of inequality measures. Wealth was very unequally distributed in late nineteenth century Wentworth County but no more so than in other parts of North America during the same time period. Wealth was unequally distributed both amongst the set of probated decedents and in the County population as a whole according to the estate-multiplier estimates. From the estate-multiplier estimates, it was seen that between 1872 and 1892, the top 20% of wealth holders in Wentworth County at the very least owned 82.5% of total wealth. The share of the bottom 40% at the most was 2.8%. The Gini Coefficients for 1872 to 1892 ranged from 0.796 to 0.891.

Judging the degree of wealth inequality in Wentworth County requires a comparison with the modern era to provide some perspective. The distribution of wealth in Canada in 1970, which was constructed by Jim Davies based on Survey of Consumer Finance Data, shows that the top 10% of the population owned 58.0% of total wealth, the top 20%, 74.0%, and the bottom 40%, 0.2%.¹

Compared with estate-multiplier estimates for Wentworth County in 1892, over the course of about 80 years, the share of the top 20% has declined and that of the next 40% increased. The bottom 40% have remained essentially without wealth. Despite the onset of the modern welfare state with its progressive income taxes and provision of universal education it would appear that the poor as well as the very wealthy are still with us.

With respect to the Life-Cycle Transition, the results suggest that the behaviour of economic agents in late nineteenth century Wentworth County was marked more by bequest and not life-cycle saving motives. Urban and rural probated decedents alike were united in their desire to provide their children

¹Davies, 1979, p. 255.

with a start in life.

A Life-Cycle Transition in Canada, if one does exist, would likely be found in the post-1900 period. Ransom and Sutch pointed to the rise in the aggregate saving rate as macro-economic evidence of a Life-Cycle Transition in nineteenth century America. In Canada, the average decade aggregate saving ratio was a relatively constant 8-10% until after 1900 when there was a rise to the 15-16% range.²

An examination of micro-data from the early twentieth century would be necessary if the possibility of a Life-Cycle Transition were to be fully explored. With the release of the 1901 Census in 1993, it will be possible to extend this set of micro-data to 1902, and then test hypotheses with an additional year of high quality wealth data.

This study of Wentworth County has attempted to determine if individuals were life-cycle or bequest savers. There is evidence to support both motives leading one to conclude that individuals were not characterized exclusively by one saving motive but exhibited diversity in their saving behaviour. Moreover, in addition to addressing the economic motivation for saving behaviour and describing the size and distribution of wealth holding, this thesis is also a contribution to the study of nineteenth century Ontario social and economic development.

Previous studies of nineteenth century Ontario have examined the features and changes emanating from the economic shifts and dislocation caused by the transition to industrialization. Katz describes the intransiency and rigid social and economic inequality brought about by the nineteenth century economy. McInnis chronicles the response of the agricultural sector to changing market conditions and Burley notes the shift from commercial to industrial wealth in

²Source: Urquhart, 1986, pp. 33-34. 1870-79: 0.0875, 1880-89: 0.0999, 1890-99: 0.0829, 1900-09: 0.1569, 1910-19: 0.1581

his study of Brantford businessmen. Gagan has examined the impact of land pressure on farm society in Peel County and Jacob Spelt, the changing urban landscape as Ontario developed into a predominantly urban society.

This account of wealth holding in Wentworth county is another addition to the study of historic economic and social change. While confirming many features of the above studies, especially the great inequality in wealth holding, it also reveals a society poised for the great economic changes of the twentieth century -- the rise of a substantial middle class and mass consumer society.

True, the estate-multiplier estimates for Wentworth County reveal an unequal society. However, between 1872 and 1892, the share of the top 10% of the wealth distribution declined from 80.3% of total wealth to about 70.5%, whereas the share of deciles three through six rose from 7.9% to 16.8%. Although the share of the bottom 40% remained virtually constant, the shift in wealth from the top deciles to the middle deciles is evidence that the economic benefits of the market economy were beginning to spread. Wealth was becoming more widely dispersed.

The signs of greater and more dispersed wealth holding appear throughout the sample of probated decedents. There was an increase in the incidence of real estate ownership and even the bottom 10% of the wealth distribution reported an increase in the proportion of wealth held as real estate. There was also a rise in the proportion of native-born probated decedents, signalling the rise of a domestic wealth holding class. Moreover, there was an increase in the number of women with wealth, foreshadowing their increased economic role in the twentieth century in terms of access to and control of economic resources.

It was probably inevitable that a somewhat more equitable distribution of wealth would have begun to emerge by the end of the nineteenth century. A capitalistic economic system could only have continued to exist if more people

were allowed to share in its wealth.

Of course, the final comments must be made about the probated decedents of Wentworth County whose lives made this study possible. The late nineteenth century, in a manner akin to the late twentieth, was a time of great economic and technological change. The fact that, by 1892, some wills were typed rather than drawn up freehand is evidence of some of the changes being wrought. However transcribed, the wills reveal much about the people of Wentworth County and their ultimate concerns, which transcended the acquisition and devolution of their wealth, often focussed on more prosaic matters.

Wrote Samuel Hess Bradt (*WC # 1753, 1882*): "...it is my express wish that I should have a plain respectable burial not too expensive or showy." Adam Hope (*WC # 1788, 1882*) specifies as his monument to posterity, a "plain Grave stone (not marble)" to be laid horizontally on his grave. Most revealing of this practical nature is Edward Mitchell (*WC # 3287, 1892*) who writes:

Bury me if practicable in my first wife's grave not from any gush of sentiment but simply that my body may rest in the same little plot of ground with other members of my family...

The probated decedents of Wentworth County, like most of us today, faced the challenge of providing for themselves and their families in what was a hostile, competitive world. In meeting this challenge, these probated decedents displayed the quintessential Canadian characteristics of frugality and 'reason over passion' -- even in death.

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