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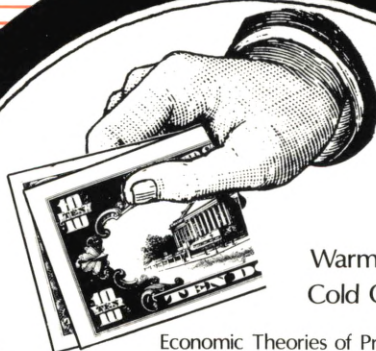
Federal Reserve Bank of Philadelphia

MARCH • APRIL 1986



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Warm Feelings & Cold Calculations

Economic Theories of Private Transfers

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Federal Reserve Bank of Philadelphia
Ten Independence Mall
Philadelphia, Pennsylvania 19106

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THE PRIVATE COSTS OF BANK FAILURES: SOME HISTORICAL EVIDENCE..... 3

Brian C. Gendreau and Scott S. Prince

Bank failures impose costs not only on people with a direct financial stake in the bank, but also on society — which is the main reason why banks today are so heavily regulated. While the costs to society are inherently hard to measure, the direct private costs — fees, and so forth — can be estimated by looking at data on bank failures from the pre-1930s, prior to much regulation. An analysis of these costs suggests that they were, and probably remain, large enough to discourage small banks from having a dangerously high ratio of debt to capital; these costs appear to have been too small, however, to have such an effect on large banks.

WARM FEELINGS AND COLD CALCULATIONS: ECONOMIC THEORIES OF PRIVATE TRANSFERS..... 15

Donald C. Cox and Robert H. DeFina

In the past decade, economists have broken ground in what traditionally has been the territory of the more “social” of the social scientists. That territory is the family, and the aim has been to understand how families allocate resources among their members. The research branches into two lines of theory — “altruism” and “exchange.” Surprisingly enough, each theory also has implications for policymakers, especially regarding the effectiveness of income redistribution programs. In the “altruism” framework, the effects of these policies are offset by family behavior, and in the “exchange” framework, the effects are magnified.

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The Private Costs of Bank Failures: Some Historical Evidence

*Brian C. Gendreau and Scott S. Prince**

Can unregulated financial markets be relied upon to constrain bank leverage? How much debt would banks choose to issue relative to capital in the absence of regulation? The answers to these questions depend upon the costs bank owners and creditors can expect to bear in the event of a bank failure. When a bank increases its debt, it also increases the chances that its

future earnings may not be enough to cover the principal and interest payments it has promised on that debt. A rising level of debt relative to capital, other things being equal, increases the risk of bank failure. But if bank failures are costly, bank stockholders and creditors will seek to induce the bank to avoid excessive levels of debt relative to capital. As a result, the market, by acting to avoid bankruptcy costs, provides a mechanism that is at least theoretically capable of regulating bank leverage.

Though a great deal has been written about bankruptcy costs and bank leverage decisions, little is known about how much it costs for banks to fail. In this article we present some estimates

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of direct, private costs of bank failures. These cost estimates are derived from the U.S. Comptroller of the Currency's published figures on receiver and legal fees involved in national bank failures between 1865 and 1934. Because these figures are from the years before the existence of the Federal Deposit Insurance Corporation (FDIC), which now subsidizes bank failure costs, they represent fairly accurate measures of the out-of-pocket costs borne by stockholders and creditors when banks fail. To anticipate this article's findings, the direct costs of bank failures are large enough to affect the capital decisions of small banks, but are trivially small for large banks.

THE COSTS OF BANK FAILURES

Banking today is one of the most heavily regulated industries in the U.S. Banks are subject to numerous restrictions on their asset choices, liability structures, locational decisions, and participation in businesses not deemed closely related to banking. Most of this regulation is designed to prevent bank failures. Specifically, the government is interested in protecting the public from the *social costs* of bank failures. The social costs of bank failures are those borne by third parties: people other than the banks' owners and creditors. If a spate of bank failures results in disruptions to credit markets, for example, the costs of these disruptions are likely to be borne by the public as well as by bank owners and creditors. Borrowers, finding it difficult to obtain credit after a series of bank failures, may respond by cutting back on their production and consumption, leading to a reduction in spending and employment in their communities, and possibly in other communities as well. A widespread reduction in economic activity could, in this way, affect large numbers of people wholly unconnected to the failed banks.¹

Though the government and public at large are likely to be concerned principally about the social costs of bank failures, it is the *private costs* of bank failures that are germane to bank liability structure decisions. The private costs of bank failures are those borne by bank shareholders and by individuals and firms with a contractual financial interest in the bank—the banks' depositors, bondholders, and other creditors. These private costs are of two kinds: the direct, out-of-pocket expenses incurred by stockholders and creditors during bankruptcy proceedings following a bank failure, and the indirect or hidden costs involved in operating or doing business with a troubled or failed bank.

The Direct Private Costs of a Bank Failure. When a firm defaults, that is, when it has been unable to make principal or interest payments on its debt, it is often declared bankrupt. Bankruptcy is a legal procedure for resolving the claims on a failed firm or for reorganizing a troubled firm. A firm may file for bankruptcy voluntarily, or it may be declared bankrupt by a court upon a petition by the creditors. If there is no hope of saving the firm as a going concern, the firm will cease operating, will be discharged from some or all of its debts, and will turn over its assets to a court-appointed trustee for distribution to the creditors. If, instead, there is a prospect of saving the firm, it will be reorganized, and will obtain shelter from its debt obligations.²

Banks are not covered by the U.S. bankruptcy laws, but by the laws governing their chartering agencies and the regulations issued by those agencies. The procedures for resolving the claims on failed banks, however, are similar to those governing the liquidation of nonbank firms, except that banks are closed by their chartering agency, and it is a receiver appointed by the chartering agency who liquidates the bank. In this paper, the word bankruptcy will be used in a generic sense to refer

¹See Ben S. Bernanke, "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression," *American Economic Review*, 73 (June 1983), pp. 257-276.

²See Michelle J. White, "Bankruptcy, Liquidation, and Reorganization," Salomon Brothers Center for the Study of Financial Institutions, Working Paper No. 304 (October 1983) for a discussion of the law and economics of corporate bankruptcy.

to both nonbank firms and banks.³

By the time a firm fails, the value of its assets will usually have fallen dramatically. This fall in asset values is commonly mistaken for the bankruptcy, or is considered to be a cost of the bankruptcy. In reality it is neither: bankruptcy is the legal state which was triggered by the fall in asset values, and not the fall in asset values themselves. Indeed, a firm's asset values can fall to zero without the firm being declared bankrupt. Consider a firm financed entirely by equity, in which each shareholder is entitled to a proportionate share of the firm's earnings, regardless of whether the firm prospers or not. If the firm does so poorly that it has no current or prospective earnings, the value of its assets will fall to zero, and the firm's shares will be worthless. The shareholders are likely to be unhappy about this turn of events, but the firm did not promise to make regular payments of any kind on its securities, and hence cannot be declared bankrupt.⁴

Going through bankruptcy proceedings, however, is not costless, and it is the expenses involved in administering the liquidation of the firm's assets or its reorganization that constitute the direct, private costs of a firm's distress. These costs include the fees paid to the trustee or receiver appointed by the court or regulatory agency to oversee the liquidation, and the legal expenses incurred by those with claims on the firm's remaining assets. In bankruptcies in the U.S., the receiver's and lawyers' fees are paid by the court or bank chartering agency from the proceedings of the liquidation. The firm's shareholders and creditors ultimately bear these costs because they receive only the value of the assets remaining after the receiver's

and lawyers' fees have been paid (see *BANK LIQUIDATIONS — THEN AND NOW*, p.6).

Indirect Bankruptcy Costs. In addition to the administrative expenses of going bankrupt, failed firms incur many indirect costs that a healthy firm could avoid. Many of these costs arise out of the confusion and inevitable inefficiency involved in operating a bankrupt or nearly bankrupt firm. Ailing firms, for example, are likely to experience difficulty hiring or keeping employees. Similarly, bankrupt firms are likely to find that their managers are spending a considerable amount of time in legal proceedings rather than managing the firm.

Other indirect costs reflect forgone opportunities. Whenever a firm fails, its customers are deprived of its product or service until they can locate substitutes. Customers are likely to be reluctant to deal with a troubled firm or a firm that is being reorganized after being declared bankrupt because they do not wish to incur the "shoeleather" costs involved in establishing a new business relationship if the firm ceases to operate as a going concern. As a result, an ailing firm may find its business falling off rapidly. In addition, a troubled firm is likely to find it very costly if not impossible to borrow in financial markets. Consequently, the firm will be unable to take advantage of many investment and sales opportunities open to solvent firms.

Banks are particularly exposed to indirect bankruptcy costs because their depositors are both their customers and their creditors. In the event of a bank closing, not only will the depositors have to find a new banking relationship, but they also will likely be denied access to their funds until their claim against the closed bank is settled. For uninsured depositors, this delay could be quite long. Although bank receivers are required to liquidate a bank as quickly as possible, it is not uncommon for a bank liquidation to take over a decade.⁵

³Before the creation of the FDIC in 1934, banks were reorganized in much the same manner as other firms. Since the advent of the FDIC, however, troubled banks have been merged into healthy banks rather than reorganized.

⁴To be more concrete, suppose you have bought shares in a mutual fund. If the value of the shares drops precipitously you would be unhappy, but you would not think that the fund had become bankrupt. The distinction is that the mutual fund has only ownership shares as liabilities, and not debt. What you own is not worth as much as when you invested, but no bankruptcy proceedings need be initiated.

⁵The longest national bank liquidation on record is for the Farmers and Drovers National Bank of Waynesboro, Pennsylvania, which failed in 1906. This unfortunate bank was in liquidation for the next 32 years.

BANK LIQUIDATIONS—THEN AND NOW

Before the creation of the Federal Deposit Insurance Corporation (FDIC) in 1934, most deposits in U.S. banks were uninsured. Deposits in some banks had been insured by state deposit guarantee funds, but those funds had proven inadequate to deal with widespread bank failures, and all had ceased operations one way or the other in the 1920s. In those days, a bank failure was treated much as any other corporate bankruptcy. The bank was closed by the U.S. Comptroller of the Currency if it had a national charter, or by its state bank supervisory agency if it had a state charter. The closing agency appointed a receiver to sell the bank's assets, with instructions to pay out the proceeds to claimants in the following order: the receiver's salary and all legal fees were paid first, depositors and other creditors were paid next, and the bank's owners were paid last—but only if there were funds left over. Consequently, the bank's creditors and owners bore the direct costs of administering and liquidating the bank after its failure.

The FDIC has handled bank failures differently. Occasionally the FDIC has closed insured banks and paid off the depositors directly. In these cases insured depositors have been paid in full (up to the insurance limits per account), and the uninsured depositors have been paid out of the liquidation proceeds of the bank's remaining assets, net of administrative and legal costs. Thus uninsured depositors have remained exposed to bankruptcy costs, just as they were before the creation of the FDIC. Usually, however, the FDIC has merged failing banks into sound financial institutions, with some financial assistance from the FDIC, in transactions known as "purchase and assumptions." Because all deposits are absorbed into the assuming bank in a purchase and assumption, depositors suffer no losses: effectively, the FDIC has provided 100 percent deposit insurance. And because the failed bank is not liquidated, there are no liquidation costs for the uninsured depositors and bank owners to bear. Purchase and assumption transactions are not completely costless to depositors in that established banking relationships are lost, but the costs are much lower than if the bank were closed and depositors paid off.

By their very nature, indirect bankruptcy costs are difficult to measure. It is hard to quantify the costs of the disorder, inefficiency, and the lost opportunities that accompany a business or bank failure. Nonetheless, these indirect costs may be large, and as such can be of substantial concern to stockholders and creditors.

BANKRUPTCY COSTS AND THE BANK LEVERAGE DECISION

Sometimes banks fail through events such as bank runs or severe local economic downturns that are no direct fault of their own. But bank managers and owners can also make decisions that affect the probability of going bankrupt. To the extent that bankruptcy results in private costs that would not have been incurred otherwise, bank owners and uninsured creditors will want to induce managers to take actions to avoid those costs. (This is aside from any public-spirited interest stockholders and creditors may have

in minimizing the social costs of bank failures.)

One important way bank managers can affect the likelihood of bankruptcy is through the bank leverage decision—the decision on how much debt to issue relative to capital. Banks have at least two motivations for issuing debt. First, deposits—an important component of bank debt—are closely linked to the provision of many nondeposit services, such as checking, loans, wire transfers, and cash management services. It is possible to provide most bank services to customers who are not depositors, but in many cases it is convenient and economical for both the bank and its customers if the services are provided along with a deposit account.⁶ Second,

⁶See Thomas Gilligan, Michael Smirlock, and William Marshall, "Scale and Scope Economies in the Multi-Product Banking Firm," *Journal of Monetary Economics*, 13 (May 1984), pp. 393-405, for evidence on joint economies in the production of loans and deposits.

because banks can deduct interest payments from federal income taxes but cannot deduct dividends or retained earnings, it is cheaper for a bank to issue interest-bearing debt than to issue stock.

On the basis of these considerations, it would appear that an unregulated bank should issue as much debt as it can. But as a bank increases its leverage, it increases the probability that it will not be able to meet its promised principal and interest payments and thus be closed. With a little foresight, uninsured creditors can see that if the bank is closed they will bear bankruptcy costs. Therefore, long before a closing becomes imminent, uninsured creditors will demand compensation in the form of higher interest payments for bearing the anticipated bankruptcy costs. But the higher interest payments will reduce the net earnings available to stockholders, reducing the market value of their shares in the bank. The result is that at some point the market value of the bank will fall as managers increase leverage. At that point, the bank's leverage may be said to be excessive. To the extent that bank managers are responsive to stockholders' wishes (and there is every reason to believe that they are in the long run) those managers will try to avoid excessive leverage positions—those levels of debt relative to capital that are so great that the value of the bank declines.⁷

MEASURING BANK FAILURE COSTS

Precisely how leveraged a bank can become before its value begins to decline depends criti-

cally on the size of expected bankruptcy costs. Very few estimates of the cost of going bankrupt, however, have been made; indirect bankruptcy costs are inherently difficult to measure, and data on direct bankruptcy costs are not collected or published in any systematic manner for most industries. It is particularly difficult to measure the private costs of recent bank failures because the FDIC effectively subsidizes bankruptcy costs. In the past 35 years, the FDIC has typically dealt with bank failures by merging moribund insured banks with healthy financial institutions rather than closing the banks and paying off their depositors.⁸ Because a merged bank does not go through liquidation, its owners and creditors are spared the direct costs of going through a bankruptcy, and many of the indirect costs, too. This does not mean that they were not concerned about bankruptcy costs: no bank owner or creditor could ever be sure that his or her bank would be merged rather than closed by the FDIC—and the FDIC has recently been closing more banks than in past years. But there have not been enough banks closed outright in recent years to provide accurate and representative data on bank failure costs.

Before the creation of the FDIC in 1934, however, the direct costs of bank failures were borne explicitly by bank owners and creditors. Each year between 1865 and 1934 the U.S. Comptroller of the Currency reported in his *Annual Report* the legal expenses and receivers' fees for every national bank failure. By looking at the size of the legal and receivers' fees relative to the

⁷This discussion has assumed that bank leverage positions are not constrained by regulation. Banks today are subject to regulatory capital requirements specifying minimum ratios of book capital to assets. These capital requirements are intended to restrain bank risk-taking, and thus serve as a substitute for the market's regulation of bank leverage. Empirical studies, however, have found that large bank leverage positions in the 1970s were sensitive to measures of debt or equity costs or both, suggesting that regulation was not binding on large banks in those years. See H. Presscot Beighley, John H. Boyd, and Donald P. Jacobs, "Bank Equities

and Investor Risk Perceptions: Some Entailments for Capital Adequacy Regulation," *Journal of Bank Research*, (Autumn, 1975), pp. 190-201, and Brian Gendreau and David Burras Humphrey, "Feedback Effects in the Market Regulation of Bank Leverage: A Time-Series and Cross-Section Analysis," *Review of Economics and Statistics*, (May 1980), pp. 276-280.

⁸See Joseph F. Sinkey, Jr., in *Problem and Failed Institutions in the Commercial Banking Industry*, Edward I. Altman and Ingo Walter, eds. (Greenwich, CT: JAI Press, 1979), for a description of the FDIC's procedures in handling troubled and failed banks.

liabilities of failed banks it is possible to estimate the direct bankruptcy costs incurred by holders of financial claims on failed banks.

The Data on Bank Failure Costs. Up to 1904, the Comptroller published the balance sheets of all national banks each year, making it easy to match failure costs to individual bank liability figures. We collected data on every national bank out of the 428 that failed between 1865 and 1904 for which figures were available. The result was a sample of 200 bank failures, with the first bank failing in 1872 and the last in 1904. This sample is the largest compiled to date in a study of bankruptcy costs.

Ideally, bankruptcy costs should be measured relative to the *market value* of bank equity and debt. Only book values, however, are available for the sample of pre-1904 bank failures. To the extent that accountants' book values measure banks' economic fortunes imperfectly, using book instead of market values will introduce measurement error into the estimates. By 1920, however, shares of many large banks were traded actively on New York and regional stock exchanges, allowing the market value of bank equity to be found for these banks. For this reason we took a second sample, this time of large banks that failed after 1920. The second sample was limited to those banks with capital greater than \$750 million because they are the only banks for which both stock prices and balance sheet data are readily available. We examined the records on every large national bank failure between 1920 and the creation of the FDIC in 1934, and collected data on every failure for which complete figures were available. The result was a sample of 21 bank failures, the first of which occurred in 1929 and the last in late 1933.⁹

In gathering the data for the sample of large

bank failures, we took balance sheet figures from *Moody's Investors Manual* whenever possible, and from *Polk's Bankers Encyclopaedia* or *Rand-McNally's Bank Directory* otherwise (the Comptroller had ceased publishing individual bank balance sheets in his *Annual Report* in 1904). We obtained stock prices from the *Commercial and Financial Chronicle* if they were listed there, and if not, from *Moody's*, *Polk's* or *Rand-McNally's* publications. In most cases, we collected the stock prices as averages of the high and low bid prices for the year because the shares were not traded actively enough to provide price quotes on the financial report dates.

The Estimates. Table 1 summarizes the statistics for the pre-1904 bank failures. This sample contains observations from banks ranging in size from only \$88,000 to over \$15 million in total liabilities (measured the year prior to failure), with an average size of about \$843,000. As can be seen in this table, liquidation was no quick process for these banks; on average, it took almost 6 years to settle the affairs of a closed bank. Nor was the bankruptcy process inexpensive: the cumulative sum of all fees paid to the receivers and claimants' lawyers during liquidation averaged \$30,140 per bank.

It would be misleading to compare these direct costs of bankruptcy to the amount of funds invested by shareholders and creditors by using the banks' total liabilities on the date of failure. In the period just before they failed the banks may have experienced a run on their deposits or a rapid fall in the value of their capital. Hence we used total book liabilities figures from one year before the failure date for each bank. For the banks in the pre-1904 sample, total receiver and legal fees averaged about 5.6 percent of total liabilities. Though most of the banks in the sample had ratios of direct bankruptcy costs to liabilities that were close to the average, a few banks had ratios that were considerably different, ranging from a low ratio of 0.3 percent to a high ratio of 18.3 percent.

Table 2, p. 10, presents statistics for the sample of large banks that failed between 1929 and

⁹This sample unfortunately omits three of the largest national bank failures of the 1929-1933 period. Bank-specific stock prices were not available for two banks that failed in the Guardian group holding company of Detroit, MI, nor for the failed Harriman National Bank and Trust Company of New York City.

TABLE 1
SUMMARY STATISTICS FOR 200 NATIONAL BANK FAILURES
1872-1904

	Mean	Standard Deviation	Maximum	Minimum
Total receiver and legal fees ^a	\$30.1	\$34.3	\$312.0	\$2.0
Number of years in liquidation	5.9	4.2	32	0.3
Total book liabilities ^a	\$843.3	\$1,726.9	\$15,002.0	\$88.0
Ratio of debt to book liabilities	66.8%	11.2%	91.8%	28.4% ^b
Ratio of receiver and legal fees to book liabilities	5.6%	2.9%	18.3%	0.2%

NOTE: All figures are book values. Liabilities are measured as of one year prior to the bank failure date.

^aDollar figures are in thousands.

^bThis implausibly low ratio of debt to book liabilities is not an error: it reflects the actual value of the notes and deposits relative to total liabilities of the National Bank of Paola, Kansas, on October 5, 1897, the year prior to its failure. The puzzle is how such a heavily-capitalized bank could have failed.

1933. Banks in this sample varied in size from \$4.7 to \$62.3 million in liabilities, and averaged \$19.7 million in total liabilities as of a year before failure. This seems like a wide range, but the coverage in the sample is actually fairly narrow. To put the sample in perspective, national banks in 1929 ranged in size from less than \$1 million in liabilities per bank in Nebraska, North Dakota, and South Dakota to over \$221 million per bank in New York City. Liquidation for the banks in the later sample averaged a little over 9 years, which was longer than it was for the banks in the pre-1904 failures sample.

With more information available on the large banks in the second sample, we were able to compare direct bankruptcy costs to bank liabilities in a variety of ways, providing a check on the pre-1904 sample's estimates. First, we calculated total (cumulative) receiver and legal fees as a

ratio of book liabilities a year prior to failure, providing the same measure used for the pre-1904 bank failures in Table 1. Second, because the receiver and legal fees involved in each bank failure were paid out over a number of years, we computed the ratio of the discounted present value of these costs to book liabilities for each bank, discounting the fees back to the failure date using the prevailing 1-year corporate bond yield for each year. Third, we compared both the undiscounted and discounted bankruptcy costs to estimates of the market value of bank liabilities as of one year prior to failure. We computed the market value of bank equity by multiplying the stock price by the number of shares outstanding. For the market value of bank debt we simply used the book value. Normally, the value of fixed-rate debt will vary with the riskiness of a firm's underlying assets, so using book values

TABLE 2
SUMMARY STATISTICS
FOR 21 LARGE NATIONAL
BANK FAILURES, 1929-1933

	Mean	Standard Deviation	Maximum	Minimum
Total receiver and legal fees ^a	\$676.7	\$410.2	\$1,684.0	\$21.0
Receiver and legal fees discounted back to failure date ^a	\$645.7	\$402.9	\$1,670.4	20.6
Number of years in liquidation	9.1	2.4	12.0	3.0
Total book liabilities ^a	\$19,689.1	\$13,588.6	\$62,323.0	\$4,727.0
Total equity capital ^a				
(a) Book value	\$2,548.6	\$1,579.2	\$7,918.0	\$1,188.0
(b) Market value	\$3,164.1	\$2,285.1	\$9,277.9	\$1,000.0
Ratio of debt to book liabilities	85.6%	4.7%	92.7%	74.9%
Ratio of receiver and legal fees to liabilities				
(a) Ratio to book liabilities	3.66%	1.75%	6.47%	0.44%
(b) Ratio to market value of liabilities	3.45%	1.65%	6.34%	0.41%

^aDollar figures are in thousands.

will be misleading. In the case of these banks, however, the error introduced by using book values is likely to be small: most of their debt was in the form of short-term deposits or demand deposits on which the banks changed the rate of interest frequently. The way depositors would have reacted to changing bank risk (barring an imminent failure) would have been to demand a higher level of interest payments per dollar

deposited—hence the value of the deposits would usually have been close to their book value of 100 cents on the dollar. Our estimate of the market value of bank liabilities, then, is the market value of bank equity plus the book value of bank debt.

From the figures presented in Table 2 it is clear that neither discounting the bankruptcy costs nor using the market value of bank equity

in measuring bank liabilities makes much of a difference in the resulting ratios of bankruptcy cost to liabilities. The discounted receiver and legal fees are close to their undiscounted counterparts—reflecting both the large fees typical in the first years of liquidation and the low interest rates of the 1930s and 1940s—and the market values of bank equity happened on average to be not very different from book values.¹⁰ However measured, direct bankruptcy costs for these 21 banks amounted on average to approximately 3.5 percent of their liabilities. Like the pre-1904 failures, most banks in this sample had ratios of bankruptcy costs to liabilities that were close to the average, but again there were some exceptions. Bankruptcy costs consumed less than one-half of 1 percent of the market value of one bank's assets, while they accounted for over 15 percent of the value of another bank.

JUDGING THE IMPORTANCE OF BANKRUPTCY COSTS

The direct bankruptcy costs for the failed banks reported in Tables 1 and 2 relative to the values of the banks' liabilities are of the same order of magnitude as those reported in other studies of bankruptcies in nonfinancial firms. Jerold Warner found that direct bankruptcy costs for 11 railroads that failed between 1933 and 1955 amounted to 4 percent of the value of the firms' liabilities (debt plus equity) one year prior to failure. In a study of the recent failures of 19 retailing and industrial firms, Edward Altman found that direct bankruptcy costs were about 6 percent of the

value of the firms' liabilities a year before failure.¹¹

Are direct bankruptcy costs of this size large enough to affect bank leverage decisions? Is the prospect of losing one out of every 15 to 20 dollars of the banks' assets to the administrative and legal costs of bankruptcy proceedings enough to deter banks from issuing excessive quantities of debt? Scholars differ on this point. Warner pointed out that it is the *expected* cost of bankruptcy that matters, so that bankruptcy costs must be multiplied by the probability that the firm will actually fail to give a reasonable estimate of the costs the firm's investors could expect to bear. He showed in an example that multiplying direct bankruptcy costs of 5 percent of firm value by a probability of going bankrupt of 5 to 10 percent results in expected costs that are negligible. Altman, however, judged that direct bankruptcy costs of this size could not be dismissed as trivial, and used a statistical failure prediction model to show that the failure probabilities for the firms in his sample had been fairly high, averaging 82 percent a year before failure and 58 percent two years before failure.

While recognizing that our direct bankruptcy cost estimates are not overwhelmingly large, we believe that they are big enough to have an impact on the leverage decisions of many banks. In competitive debt markets, in which funds flow from institution to institution in response to interest rate differentials of only a few basis points, a potential loss to bankruptcy costs of as little as 1 to 2 percent of the value of an investment (100 to 200 basis points) is likely to be viewed as a serious matter—serious enough, certainly, to induce some investors to shy away from such investments, and to induce bankers to think about how to avoid those costs. In addition,

¹⁰The simple correlation coefficient, r , between the book and market values of equity is .57 a year before failure, and .87 five years before failure. Surprisingly, the market values are higher than the book values on average. This appears to reflect the speculative run-up of stock prices in the late 1920s: one bank in the sample, for instance, had paid no dividends since 1921 yet had a stock price in 1929 that was twice its book value. In contrast to Warner's finding that the market value of the securities of the firms in his sample declined as the date of their failure approached, no such movement was evident in the stock prices of these banks.

¹¹See Jerold B. Warner, "Bankruptcy Costs: Some Evidence," *Journal of Finance*, 32 (May 1977), pp. 337-347, and Edward I. Altman, "A Further Empirical Investigation of the Bankruptcy Cost Question," *Journal of Finance*, 39 (September 1984), pp. 1067-1089. Altman's study estimates indirect bankruptcy costs, too.

to the extent that there are also indirect costs to bankruptcies—and by Altman’s estimates they may be as much as twice as high as the direct costs—they will serve to reinforce market participants’ concern with direct bankruptcy costs in making leverage decisions.

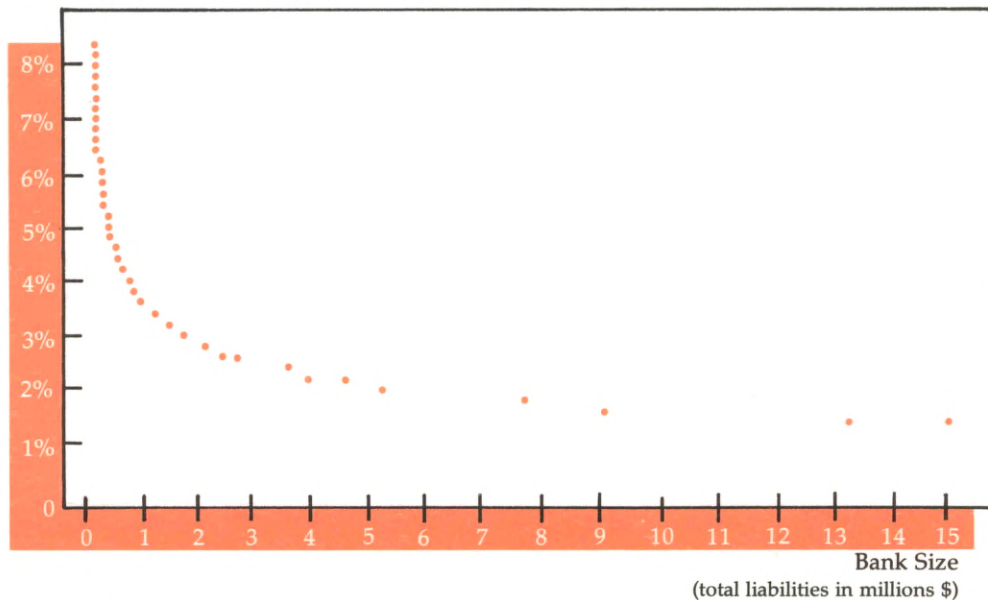
Before coming to a final conclusion about the significance of our bankruptcy cost estimates to bank leverage decisions, it is important to point out that our data suggest that it is proportionately less expensive for a large bank to go through a closing and liquidation than it is for a smaller bank. In the sample of 200 bank failures from 1872-1904, which includes banks of a wide range of sizes, direct bankruptcy costs rose with bank

size, but not on a one-for-one basis. Instead, for every 1 percent increase in bank total liabilities, bankruptcy costs rose by only .65 percent. (See the Appendix: ECONOMIES OF SCALE IN BANK FAILURES.) This relationship is illustrated in a slightly different way in Figure 1, which shows that the relationship between the ratio of direct bankruptcy costs to liabilities and bank size (measured by total book liabilities as of a year prior to failure) is unmistakably negative. For banks with total liabilities of less than \$500,000, the ratio of direct bankruptcy costs to liabilities a year prior to failure averaged 6.3 percent; for banks with liabilities of from \$500,000 to \$1 million, the ratio averaged 5.3

FIGURE 1

THE RELATIONSHIP BETWEEN DIRECT BANKRUPTCY COSTS RELATIVE TO LIABILITIES AND BANK SIZE

Ratio of Direct Bankruptcy Costs to Liabilities



NOTE: Direct bankruptcy costs are total receiver and legal fees paid out during liquidation and liabilities are book values as of a year before failure. The curve in the figure was fitted by a log-linear regression of the ratio of bankruptcy costs relative to total liabilities on total liabilities.

percent, and for the banks with liabilities of over \$1 million the ratio fell to 3.3 percent. The largest four banks in the over-\$1 million category, moreover, all had ratios of only 1 to 2 percent.¹²

Given that direct bankruptcy costs do not rise proportionately with bank size, those costs should loom larger in the leverage decisions of small banks than of larger banks. There is probably no easy way to test this hypothesis, but it is interesting to note that small banks tend to have comparatively low leverage ratios—that is, lower ratios of debt to total liabilities—while large banks are usually very highly leveraged. This was true before 1934, and it is still true today.¹³ Though many factors enter into bank leverage decisions,

¹²Would the bankruptcy of an uninsured bank today be as costly as the bankruptcy of a comparable bank before 1934? Probably so. Many technological advances in information collection and processing have occurred since the 1930s, which have doubtless restrained the rise in bankruptcy costs. But the principal component of bankruptcy costs is legal fees, and lawyers' salaries have more than kept pace with salaries in other professions and with consumer prices generally since the 1930s. Bankruptcy remains a long, tedious, and expensive process.

¹³The ratio of equity capital to assets for insured banks in 1984 averaged 8.5 percent for banks with assets of \$100 million or lower, 7.15 percent for banks with assets greater than \$100 million but less than \$1 billion, and 4.6 percent for money center banks with assets exceeding \$1 billion. These ratios are derived from return on equity and return on asset figures reported by Deborah Danker and Mary McLaughlin, "Profitability of Insured Commercial Banks in 1984," *Federal Reserve Bulletin*, (November 1985), pp. 836-849.

the observed pattern of leverage by bank size is at least consistent with small banks trying to avoid incurring the bankruptcy costs that larger banks can ignore with less peril.

CONCLUSIONS

In this paper we have presented estimates of the direct costs to failed national banks of going through bankruptcy before 1934. We used historical data on bankruptcy costs because they are not distorted by the indirect subsidies that failing banks have enjoyed in recent years when regulators have merged them into solvent banks. Overall, our estimates show that the total administrative and legal costs of bank failures averaged between 3 and 6 percent of the value of bank liabilities. The estimates also show that direct bankruptcy costs were fairly large relative to the value of small banks, but negligible in relation to the value of large banks.

Our estimates of the administrative and legal costs of going through bankruptcy suggest that these costs alone are high enough to affect the leverage decisions of many banks. If regulators ceased regulating bank leverage positions and also allowed uninsured depositors to suffer losses, the prospective direct costs of bankruptcy would be high enough to affect the debt positions of small and mid-sized banks. Direct bankruptcy costs are so low relative to the value of large banks' liabilities, however, that they are not likely to have a material impact on large bank leverage positions.

APPENDIX

ECONOMIES OF SCALE IN BANK FAILURES

It is possible to think of several reasons why the administrative and legal costs of going through bankruptcy might not vary in direct proportion to bank size. The affairs of a large failed bank might be considerably more complicated than those of a small bank, and thus disproportionately more costly to unravel. On the other hand, the fixed costs of a bankruptcy, such as the receiver's overhead, may be substantial relative to the value of a small bank, but negligible relative to the value of a larger bank. Or the legal costs of resolving a claim against the failed bank may be about the same for each account in the bank, but large

banks may have more large balance accounts than small banks. The issue is at heart an empirical one.

To see how bankruptcy costs varied with bank size, we used a statistical technique called regression analysis. Specifically, we regressed the natural logarithm of total direct bankruptcy costs, $\ln(BC)$, on the natural logarithm of bank total liabilities measured one year before failure, $\ln(TL1)$, using data from both the 1872-1904 and 1929-1933 bank failure samples. The coefficient on the bank liabilities variable in a regression specified this way measures the percentage change in the bankruptcy costs associated with a 1 percent change in bank size.^a A coefficient of 1.0 would indicate that bankruptcy costs rose on a one-for-one basis with bank size. A coefficient of less than 1.0 would indicate that a 1 percent increase in bank size was associated with a less than 1 percent increase in bankruptcy costs, and economies of scale may be said to have existed in bankruptcy. If the coefficient is greater than 1.0, it would indicate that bankruptcy costs rose more than proportionately with bank size, indicating diseconomies of scale in bankruptcy.

As can be seen in the regression results reported below, the coefficients on (the log of) bank liabilities using data from the 200 banks that failed between 1872 and 1904 is .654. This is significantly different from 1.0 at the 99 percent confidence level. Investors in these banks benefited from clear economies of scale in bankruptcy.

For the 21 large national banks that failed between 1929 and 1933 the estimated coefficient is close to unity, suggesting that no scale economies existed in bankruptcy for these banks. Unfortunately, we can have little confidence in this conclusion because the sample is small and the standard error on the estimated coefficient is large: we cannot, for instance, reject the hypothesis that the estimated coefficient differs significantly from .65 at the 1 percent level. We are more comfortable with the scale economies estimate from the earlier bank failures: it is based on many more observations—and from banks of all sizes rather than just large banks.

Regression Results

A. 1872-1904 Bank Failure Sample:

$$\ln(BC) = -.935 + .654 \ln(TL1)$$

(.238) (.039)

R-squared: .591 Number of observations: 200
Standard error of the regression: .277

B. 1929-1933 Large Bank Failure Sample:

$$\ln(BC) = -3.408 + .994 \ln(TL1)$$

(2.42) (.249)

R-squared: .455 Number of observations: 21
Standard error of the regression: .682

NOTE: Standard errors are in parentheses. All liabilities are measured using book values. Results using discounted bankruptcy costs or estimated market values for the liabilities were not materially different from the results reported above.

^aSee Charles R. Frank, Jr., *Statistics and Econometrics* (New York: Holt, Rinehart & Winston, 1971).

Warm Feelings and Cold Calculations: Economic Theories of Private Transfers

*Donald C. Cox and Robert H. DeFina**

Many economic policy initiatives redistribute income and wealth among the populace, either by accident or by design. Specific program changes, such as a reduction in Social Security benefits, as well as broader changes, such as the suggested overhaul of our tax system, all funnel resources from one group of people to another.

Even monetary and fiscal policies that focus strictly on the economy's overall performance have implications for the distribution of income and wealth.

Such redistributions can affect people's well-being, or welfare, making certain individuals better off at the expense of others. Not surprisingly, these reallocations often spark heated debates about whether the incidence of gains and losses to people's welfare is desirable. Indeed, the adoption of one policy over another often turns on the associated income redistribution and equity issues.

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Government policies aren't the only reason for income and wealth transfers, however. Private individuals, acting on their own with no official prodding, also redistribute significant amounts of income, property, and personal services to family members and friends. Conservative estimates indicate that individuals make some \$100 billion of private transfers annually (not counting charitable contributions).¹

These private transfers could prove a critical element in debates over the welfare impact of policy-induced redistributions. In particular, recent economic analyses suggest that people may take public redistributions into account when they make their private transfer decisions. For example, people may decrease their transfers to a family member whose income rose due to a government program change. As a result, private transfers could alter or even erase the effects on an individual's well-being that public policies would otherwise have. To understand fully the welfare implications of their actions, then, policymakers must understand the interplay between public and private transfers.

EXPLAINING PRIVATE TRANSFERS: WHAT GIVES?

The term "transfer payment" normally conjures up visions of vast federal bureaucracies channeling money from the well-fed to the hungry, from the landed to the homeless. And while the government certainly reallocates a substantial amount of funds, economists have discovered that it does not monopolize that activity. Private individuals, they now realize, also redistribute significant amounts of resources

amongst themselves. These individuals include familial relations, such as parents and their adult children, as well as friends who are not members of the same family.

A recent study by Donald Cox and Fredric Raines provides an interesting socioeconomic snapshot of private transfer givers and receivers.² Their analysis shows that individuals of all types participate in the private transfer network. On average, earnings among givers are almost twice as high as earnings among receivers, while the average value of assets among givers (financial plus tangible wealth) is almost three times as high as those among recipients. Givers tend to be older than recipients, and fewer of them are married. Average education levels for recipients and givers are virtually identical.

Of the \$100 billion of private transfers that individuals make, about 40 percent comprise bequests—the \$5,000 Aunt Harriet wills to niece Mary or the family heirlooms passed from generation to generation. The remaining 60 percent constitute transfers between living family members and friends, transfers that help defray the recipients' cost of food, rent, education, and their many other requirements and luxuries of daily life.³

Most individuals wouldn't question the motives for those private transfers. Indeed, asking

²Donald Cox and Fredric Raines, "Interfamily Transfers and Income Redistribution," in Martin David and Timothy Smeeding, eds., *Horizontal Equity, Uncertainty and Measures of Economic Well-Being*, National Bureau of Economic Research Conference Proceedings, forthcoming. Cox and Raines discuss numerous socioeconomic characteristics of private transfer givers and receivers, basing their analysis on the President's Commission on Pension Policy Household Survey. That survey was conducted in August, 1979. We mention only a few of the many characteristics that they present, and direct the interested reader to their study.

³The aggregate figure for bequests comes from Laurence J. Kotlikoff and Lawrence H. Summers, "The Role of Intergenerational Transfers in Aggregate Capital Formation," *Journal of Political Economy*, (August 1981), pp. 706-732. The aggregate figure for transfers among living individuals comes from Mordecai Kurz, "Capital Accumulation and the Characteristics of Private Intergenerational Transfers," *Economica*, (February 1984), pp. 1-22.

¹This article purposely excludes private contributions to charitable organizations. We exclude these contributions because the theories that we describe stress a family context in which donor and donee are closely related. We mention in passing, however, that these theories and their implications might apply to some aspects of private charitable contributions. A recent study by Charles T. Clotfelter, *Federal Tax Policy and Charitable Giving*, (Chicago: University of Chicago Press, 1985), estimates that private charitable contributions equaled almost \$50 billion in 1980.

the reason for someone's generosity would be regarded widely as an affront. And yet, economists have begun to do just that. Economists ask not because they are nose-y or crass by nature (although that is debatable in the minds of some), but rather because of their broader interest in understanding how individuals allocate scarce resources among competing uses. Private transfers represent, in actuality, one of many alternative uses for people's income, property, and time. Not surprisingly, then, economists have applied their analytical methods toward describing why people make those transfers instead of, say, investing in real estate, buying a record, or seeing a ballgame. Although economists' models cannot capture all of the aspects of social interactions among individuals and families, they have attempted to examine some of the possible motivations for private transfers. Thus far, they have offered two complementary explanations.

The Altruism Model. One seemingly natural motivation for people's giving is their caring for others. People rarely remain unaffected by the fortunes that befall their family and friends, but stand ready to share the good times and mitigate the bad. Economists recognize this, and have adopted people's mutual concern as a basis for explaining private transfers.

The particular version of "altruism" that economists have examined is one that is more relevant to economic behavior than to philosophical discussions of human motivation. In the economic literature, this so-called "altruism" theory begins, ironically, by presuming that self-interest guides people's actions.⁴ That is, each individual always tries to get the most satisfaction from his or her own income. For some, happiness comes

only from the goods and services that they purchase for their own use. But for others, labeled "altruists," pleasure also arises from the happiness experienced by the people they know. An altruist might, for example, get satisfaction both from his recent vacation and from his sister's exuberance at landing a new job. Altruists, then, exhibit a split-personality, acting always in their own interest yet caring about the well-being of others in the process.

Altruism leads naturally to private transfers. Because the altruist receives satisfaction both from his own consumption and the happiness of his family and friends, he is likely to use his income to enjoy some of each. He can increase the happiness of his close relations by giving them money, no strings attached, to be used as they prefer. Any satisfaction that they obtain from the income transfer will also accrue to the altruist.

How much income the altruist devotes to private transfers and to whom he gives the money will depend on the amount of extra satisfaction that the additional income produces. The altruist's self-interest tells him to spend his money where it yields him greatest happiness. Thus, he will make a particular transfer if the satisfaction he gets exceeds the pleasure he could obtain from some other use of his money.

The recipient's financial situation probably helps determine the amount of satisfaction that the transfer provides the giver. Presumably, a family member with very little income will be happier about the altruist's donation than will a family member with a large income. An extra \$50 will probably mean more to someone who is unemployed, for instance, than to someone who has a lucrative investment banking job. Transfers targeted toward more needy family members, then, yield the altruist more satisfaction than donations made to more affluent members. Consequently, an altruist will more readily make transfers to poorer individuals than to richer ones. In this way, private transfers motivated by altruism serve a compensatory role, muting differences in family members' income.

⁴The theoretical underpinnings of the altruism model are described in Gary Becker, "A Theory of Social Interactions," *Journal of Political Economy*, (December 1974), pp. 1063-1094, Gary Becker, "Altruism in the Family and Selfishness in the Marketplace," *Economica*, (February 1981), pp. 1-15, and Gary Becker, *A Treatise on the Family*, (Cambridge, MA: Harvard University Press, 1981). Becker notes that his use of "altruism" is in a more limited sense than has been used generally. See "Altruism in the Family . . ." p. 2.

The notion that private transfers play a compensatory role accords well with the caring and mutual concern that one often associates with those transfers. But is that the only role for private transfers? A moment's reflection suggests that the richness and complexity of familial interactions allows room for other roles as well. Certainly, numerous occasions arise when an individual can freely pursue his or her own self-interest, which may include improving the lot of other family members. Yet, other occasions arise when one's preferences become subordinate to the family's collective choice. Deciding on an acceptable vacation spot, what color drapes to buy, and when to allow one's son to have his first date, all represent instances when family members can have different preferences but cannot or will not impose their own choice on the others. At such times, when members' divergent interests conflict, the need for negotiation arises.

Families often resolve conflicts by bargaining. One member might agree explicitly, for example, to a vacation at the North Pole (despite her dislike of the place), if the other family members okay the purchase of paisley curtains (something she likes but the others find in bad taste). Or members might have an unspoken understanding, whereby Junior's yardwork (something he views with displeasure) "earns" him his parents' permission to stay out late on Saturday night (something that makes them a bit uneasy). These types of family negotiations, in addition to altruistic feelings, can also give rise to private transfers. Economists have described this type of behavior in what may be called the "exchange model" of private transfers.⁵

The Exchange Model. The premise of the so-called "exchange" theory of private transfers is that transfers represent payments by one person for the services rendered by another. Essentially, the theory envisions a family-type setting, with one person desiring services (call her the "parent") that only another particular person can provide but would rather not (call him the "child"). These services might include, for instance, companionship and conforming to parental regulations.⁶

The model depicts child and parent as rational, self-interested people who "bargain" and reach a voluntary agreement about the quantity of services provided and the size of the transfer paid for those services. The agreement might be explicit, such as when a rich aunt controls a wayward nephew with a promised inheritance. Or it might be tacit, such as when college students regularly call home in order to "earn" an allowance from their parents.

Because the child may view the provision of such services with displeasure, he will supply services to the parents only if adequately compensated for his troubles. "Adequate" here means sufficient to leave him at least as well off as he would be if he provided no services and received no payment. If his expected payment is less than adequate, then he'll consider some other use of his time more valuable, and he will pursue that activity rather than supplying the services to his parents.

The parent obtains happiness from the child's services in the same way that she does from other goods and services. And, those factors that determine her demands for other goods and services also determine her demand for the child's

⁵Exchange models of private transfers are presented in B. Douglas Bernheim, Andrei Shleifer, and Lawrence H. Summers, "Bequests as a Means of Payment," NBER Working Paper No. 1303 (March 1984), and Donald C. Cox, "Motives for Private Transfers," Hoover Institution Mimeo (July 1985). Again, economists' models do not describe all aspects of exchange behavior among family members — children and their parents do many things for each other because of various motives. The bargaining or negotiations approach discussed here is just one type of behavior.

⁶The services associated with exchange relationships discussed here should not be interpreted in such a limited way that they include only family actions involving "love" and "affection." For example, Laurence J. Kotlikoff and Avia Spivak, "The Family As An Incomplete Annuities Market," *Journal of Political Economy*, (April 1981), pp. 372-391, suggest that such services might take the form of insurance arrangements among family members aimed at protecting members from the risks of uncertain lifetimes.

services. Thus, her income, the price of the services, and how much she desires the services will all influence the quantity of services for which she bargains.

The size of the transfer that the parent makes to the child and the amount of services that the child supplies to the parent emerges from the bargaining process.⁷ Based on their respective situations, parent and child will make offers and counter-offers in an attempt to reach mutually agreeable terms. The agreement ultimately reached will reflect the initial bargaining positions of the parent and child, as well as their negotiating savvy. The stronger the bargaining position of an individual, the more concessions he or she will be able to extract from the other party. A key determinant of a person's bargaining strength is the degree of well-being that he or she can achieve in the absence of any agreement. Chances are that a person who is very unhappy in his current state will be more anxious to strike a deal that improves his condition than one who feels quite contented with the way things stand. The better off an individual is from the start, the stronger his or her bargaining position will be, and the more advantageous the deal he or she will be able to negotiate.

Empirical Evidence on Private Transfer Motives. Although introspection suggests that altruism and exchange are plausible motives for some types of private transfers, economists like to gather more formal, statistical support for these explanations before accepting their validity. Empirical research on private transfers remains at an early stage, so existing information is preliminary and incomplete. Nonetheless, available studies do confirm that both altruism and exchange motives are at work.⁸

⁷The outcome of the bargaining process envisioned by the exchange model is the so-called "Nash solution," which is commonly used in economic models of bargaining. An instructive discussion of the Nash solution is contained in R. Duncan Luce and Howard Raiffa, *Games and Decisions*, (New York: John Wiley and Sons, 1957).

⁸The following discussion of empirical results is not exhaustive. A more complete catalogue of relevant studies is found

Two studies that focus on bequests illustrate the point. One, completed by Nigel Tomes, examined the relation between the size of inheritance that people receive and their income level.⁹ He found an inverse relation, and concluded that bequests perform a compensatory role consistent with the altruism model. Another study of bequests, conducted by B. Douglas Bernheim, Andrei Shleifer, and Lawrence Summers, found evidence of exchange motives. Using different data from Tomes', they analyzed whether parents use bequests to influence their children's behavior.¹⁰ They determined that the frequency of a child's visits and phone calls increases the larger his or her expected inheritance becomes. This finding leads them to conclude that parents use transfers, at least in part, to obtain services from their children. Research focusing on transfers between living individuals, rather than on bequests, also yields evidence that supports both the altruistic and exchange motives models.¹¹

The current theoretical and empirical developments in the economic analysis of private transfers represent first steps in what will likely be an exciting area of research for some time to come. As it turns out, the forthcoming insights may be of more than academic interest. Understanding why people make private transfers has important implications for the impact of economic policies.

PRIVATE TRANSFERS AND PUBLIC REDISTRIBUTION

Virtually all changes in social and economic

in Bernheim, et al., "Bequests as a Means of Payment," and Robert A. Pollak, "A Transaction Cost Approach to Families and Households," *Journal of Economic Literature*, (June 1985), pp. 581-608.

⁹Nigel Tomes, "The Family, Inheritance, and the Intergenerational Transmission of Inequality," *Journal of Political Economy*, (October 1981), pp. 928-958.

¹⁰B. Douglas Bernheim, Andrei Shleifer, and Lawrence H. Summers, "Bequests As a Means of Payment."

¹¹See, for example, Jere R. Behrman, Robert A. Pollak, and Paul Taubman, "Parental Preferences and Provision for Progeny," *Journal of Political Economy*, (February 1982), pp. 52-73, and Donald C. Cox, "Motives for Private Transfers."

policy redistribute income and wealth, either intentionally or unintentionally and, hence, alter people's financial position. A reduction in Social Security benefits combined with a cut in payroll taxes, for example, channels income from retirees to workers. Cuts in educational loan guarantee programs also redirect money, from student borrowers (or their parents) to taxpayers in general. And generally, policymakers agonize over the effect that these sorts of redistributions have on people's financial positions and well-being. Indeed, such concerns often occupy center stage in discussions regarding the underlying policy's worth.

Private transfers may complicate these issues significantly. For by changing people's financial status, policymakers may spark adjustments in people's private transfers, whether those transfers are motivated by altruism or exchange. And because those adjustments might carry their own welfare implications, they might alter the welfare impact that public redistributions would otherwise have. Policymakers, then, must understand these potential responses if they are to assess accurately the ultimate impact of their actions on people's welfare.

No single, summary statement can describe how private transfers respond to public redistributions. Obviously, the precise way that private transfers respond and what the welfare consequences of those responses are will depend on the many particulars of the situation. Those particulars include whom the policy change affects, what the motives underlying the private transfers are, and so forth. But to get a flavor of the possible responses and their consequences, consider the hypothetical cases of the Donors and the Barthers.

The Cases of the Donors and the Barthers. Ellie Donor and Andy Barter are sailing enthusiasts, and each owns a sailboat. Ellie has a nephew, Eldon, and Andy has a niece, Ann. Both Eldon and Ann are unemployed and each receives a monthly unemployment check of \$100. In addition, Ellie sends Eldon \$50 every month based on her altruistic feelings toward him. Andy like-

wise sends Ann \$50 every month, but his transfers are motivated by exchange, not altruism. Specifically, he sends Ann money to induce her to come talk about windlasses and bowdecks, something Ann dreads.

Recently, Congressman Newbill has recommended increasing monthly unemployment benefits to \$150 from \$100. He suggests that the needed revenue for the increase come from a monthly tax of \$50 per sailboat owner.¹² This policy initiative redistributes income away from sailboat owners, like Ellie and Andy, and toward unemployed persons, like Eldon and Ann, presumably to improve the well-being of the unemployed at the expense of sailboat owners. Before supporting Newbill's proposal, however, the Ad Hoc Committee on Maritime Taxation wanted to be sure that the welfare implications of this redistribution for typical families, like the Donors and Barthers, would be the intended ones.

First, consider what happens to the altruistic family—the Donors. On the surface, the program change appears to have the anticipated and desired consequences. The change transferred \$50 from Ellie to Eldon, making him better off at her expense.

But the story doesn't end there. Prior to the boost in unemployment benefits, Ellie's altruistic feelings compelled her to send Eldon \$50. The program change altered both her and Eldon's financial situation, however, and this caused Ellie to reevaluate her previous decisions. Ellie realizes that the government is now doing what she had intended to do anyway—transferring \$50 from herself to Eldon. Consequently, she now sees no need to send him the monthly check for \$50 as she did voluntarily before. Ellie's altruistic feelings still compel her to send him \$50. But she cares little how she sends it. Whether she sends it directly, or through the government,

¹²In order to concentrate solely on the influence of private transfers, we assume that neither the unemployment program nor the tax on sailboat owners has any impact on any aspect of individuals' resource allocation decisions other than (possibly) their private transfer decisions.

she receives the same satisfaction from Eldon's increased well-being. And because the government now performs the task, she cuts back her private contribution to zero.

Ellie's response to the government program change has striking implications: by adjusting her private transfers, Ellie will erase any welfare effects that the program change might have had. Due to Ellie's response, Eldon's total income is \$150 both before and after the increase in unemployment benefits. Moreover, Ellie still gives Eldon only \$50 as before, although her contribution is more roundabout. She pays the \$50 in taxes, and the government then gives the \$50 to her nephew. Ultimately, Ellie and Eldon remain in precisely the same situation as before and, hence, neither experiences any change in well-being.

The altruistic link between Ellie and Eldon, and the associated private transfers, are a barrier to the success of Congressman Newbill's proposal. On the surface, his plan seemed reasonable and likely to achieve the desired welfare effects. Indeed, the proposal's initial impact yielded just those results. But the program change also caused Ellie to rethink her private transfer decisions. And, her subsequent response produced unintended welfare effects that completely neutralized the redistribution program.

The program change precipitates different added welfare effects when exchange motives underlie private transfers, as they do in the Barter household. Initially, the change enhances Ann's welfare. She, like Eldon, receives additional income which allows her to buy more of the things that give her pleasure. Uncle Andy is less fortunate; his now higher taxes reduce his spendable income and, hence, diminish his well-being.

Congressman Newbill's proposal, then, apparently yields the desired results, as it did with the Donors. That is, Ann benefits at Andy's expense. But as with the Donors, the story doesn't end there. The reason is that the program change alters the relative bargaining positions of the two. By increasing Ann's income and, hence, her well-being, the program change improves her

initial bargaining position. And by decreasing Andy's income and, hence, his well-being, the program change erodes his initial bargaining position.

This shift in relative bargaining positions has its own welfare implications. Because the redistribution places Ann in a relatively more advantageous bargaining position than before, she can now obtain a more favorable agreement than before. For instance, Ann might now visit Andy less, but receive the same size transfer as before. This leaves her somewhat better off, and Andy somewhat worse off, than the initial effect implied.

The exchange-motivated private transfer arrangement thus magnifies the program change's initial impact. The program change improves Ann's welfare not only by allowing her to spend more but also by allowing her to strike a more favorable deal with her Uncle. And, the program change diminishes Andy's well-being not only by forcing him to spend less but also by causing him to accept a less favorable deal from his niece.

Congressman Newbill's proposal seems destined to produce unwanted side effects which ultimately alter its intended results. When altruistic motives underlay private transfers, as they did for the Donors, adjustments in private transfer decisions may completely erase the intended impact of the program change. When exchange motives underlay private transfers, as they did for the Barter's, adjustments in private transfer decisions may magnify the intended impact of the change. These effects, moreover, would not be taken into account if people's private transfer decisions were ignored.

While focusing on a specific redistribution, the hypothetical cases of the Donors and the Barter's illustrate the more general point that private transfer decisions might respond to public redistributions, and thereby alter the impact that public redistributions would otherwise have. As the example shows, the response will differ depending on what motivates the private transfers. When altruism motivates private transfers,

those transfers will play a compensatory role, dampening any welfare impacts that public redistributions might have on either the giver or the beneficiary. Private transfers play no such compensatory role when they stem from exchange considerations. In that case, private transfers will respond not to changes in people's well-being per se, but to shifts in their relative bargaining positions. As a result, exchange-motivated private transfers will reinforce any welfare effects that public transfers might have. Currently available information is insufficient to assess accurately the practical significance of private transfers for the many policy changes that redistribute income and wealth. But given the potentially critical role that private transfers play, policymakers would do well to examine their likely importance when contemplating policy changes.

PRIVATE TRANSFERS: A FLY IN THE POLICY OINTMENT?

Economic research on people's motives for private transfers has uncovered a potentially important policy issue. In particular, people are likely to adjust their private transfer behavior in response to public redistributions, and thereby alter the welfare implications that public transfers would otherwise have. This conclusion flows from two economic models that provide plausible and complementary, though not exhaustive, descriptions of why individuals make private transfers. According to the altruism model, people make transfers because they share in the recipient's subsequent happiness. And, if the altruism model accurately describes some aspects of our society, then policy redistributions may ultimately be undone by changes in private

transfers, for altruistic private transfers serve a compensatory role. According to the exchange model, people make transfers as a quid pro quo, for services rendered by the recipient. And, if the exchange model accurately describes some types of behavior, then policy redistributions may ultimately be magnified by changes in private transfers. In that case, private transfers compound the gains and losses of individuals as their bargaining positions change.

Preliminary empirical evidence has been found to support both explanations, which is not at all surprising. It's easy enough, indeed, to imagine that a single individual could embody both kinds of behavior—for example, altruistic motives toward close family members, and exchange motives toward more distant relations.

Research on this issue is at an early stage, however, and economists are just beginning to grasp the complexities of private transfers. More sophisticated analyses that account not only for altruism and exchange, but also other economic factors, will probably be required to understand fully the motives for private transfers and their implications for policy. These might include, for instance, attempts by families to insure against the risks associated with uncertain lifetimes. In addition, noneconomic factors, such as the roles of tradition and religious custom, might also prove crucial influences in private transfer decisions. And while economists cannot yet provide a firm ground from which to survey the interplay between public redistributions and private transfers, policymakers will need to keep a watchful eye on developments in the analysis of private transfer behavior.



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