Cyclical and Demographic Influences
on the Distribution of Income in California*

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The California economy is stronger than it has been in a number of years. Employment growth is solid, unemployment is low, and consumer confidence is high. Despite these strengths, research suggests that the living standards of families at many percentiles of the California income distribution remain below those of comparable families in previous expansions. In this paper, we examine how business cycle timing and changes in demographic structure have affected family income growth in California during the 1990s. We find that demographic and cyclical factors have served to temper family income growth in the state during the past decade.

1. Introduction

The California economy is stronger than it has been in a number of years. Employment growth is solid, unemployment is low, and consumer confidence is high. Sustained good news regarding economic conditions in the state has prompted many to turn their attention towards distributional issues, particularly those related to income growth and income inequality. Much of the research in this area finds that California's recent economic expansion has not improved the living standards of families across all percentiles of the income distribution (Daly and Royer 1999, Reed, Haber, and Mameesh 1996, Reed 1999). As a result, income inequality in California has continued to increase.

This outcome stands in contrast to the experience outside of California. Continuous and robust economic growth elsewhere in the U.S. has lifted the living standards of families across the income distribution. Moreover, recent rapid growth in the incomes of families in the bottom 25 percent of the U.S. income distribution has helped slow growth in income inequality (Daly and Valletta 2000).

Indeed, before the late 1980s, the California economy produced gains in family income that met or exceeded those experienced elsewhere in the nation. Since then, only those at the top of the income distribution experienced real income growth, and income inequality in California continued to increase relatively rapidly. This divergence was exacerbated by the early 1990s recession, which was deeper and longer in California than in the rest of the U.S.

In addition to diverging from the U.S. in recent years, California also has strayed from its own historical pattern. Compared to previous periods of expansion, when economic growth was associated with declines in the number of families living in poverty and increases in the number of families regarded as middle class, data through 1998 show that a larger number of Californians were in poverty and a smaller number were in the middle class than in 1989, the latest business cycle peak. Moreover, a majority of Californians had incomes below those held by families at equivalent percentiles of the income distribution in 1989. In combination, these circumstances (divergence from the U.S. and from historical state patterns) have struck a nerve among policymakers, researchers, and the public and have prompted many to ask whether the government should take a more active role in guaranteeing the equality of outcomes among the population.

However, before considering policy prescriptions designed to reduce income dispersion in California, it is important to understand how and why California's experience during the 1990s has deviated from its own historical pattern and from the recent experience of the rest of the U.S. A number of potential hypotheses exist, including differences in business cycle timing, changes in population composition, changes in industrial structure, and changes in the way the economy operates in the state. Other researchers have looked at many of these factors and concluded that each plays some role in explaining why California looks different in the 1990s (Daly and Royer 1999, Reed, Haber, and Mameesh 1996, Reed 1999).

This paper adds to this literature by examining how business cycle timing and changes in demographic structure have affected family income in California. Specifically, we look at the relative contributions of business cycle timing and changes in demographic characteristics on rising inequality, slower family income growth, and smaller absolute income gains in California, over time and compared to the rest of the U.S. Previous research has concentrated on examinations of growing inequality (Reed, Haber, Mameesh 1996 and Reed 1999) or on the economic well-being of the middle class (California State Legislature 1997), but relatively little research has been done on the relationship among economic growth, income inequality, and movements within the income distribution.

We begin by documenting trends in family income and measures of income inequality in California and the rest of the U.S. We then describe the movement of various portions of the income distribution over time, comparing the experiences of Californians with those living elsewhere in the U.S. Finally, we examine the extent to which demographic and business cycle differences account for the divergence of California from the rest of the U.S. during the 1990s.

2. Year Selection, Data, and Variable Design

2.1. Business Cycles and the Income Distribution

Cross-sectional comparisons of the economic status of Americans over time are sensitive to the years over which the comparisons are made. Figure 1 plots two general economic indicators of the business cycle—civilian unemployment rates and median real family income—that demonstrate this point. Outside of California, business cycle peaks (i.e., low points in unemployment) in 1973, 1979, and 1989 were followed by business cycle troughs in 1975, 1982, and 1992 for most of the U.S (Panel A). While an upward-sloping line can be drawn across real median

Figure 1
Real Median Income and the Unemployment Rate

Panel A. United States Excluding California

Panel B. California
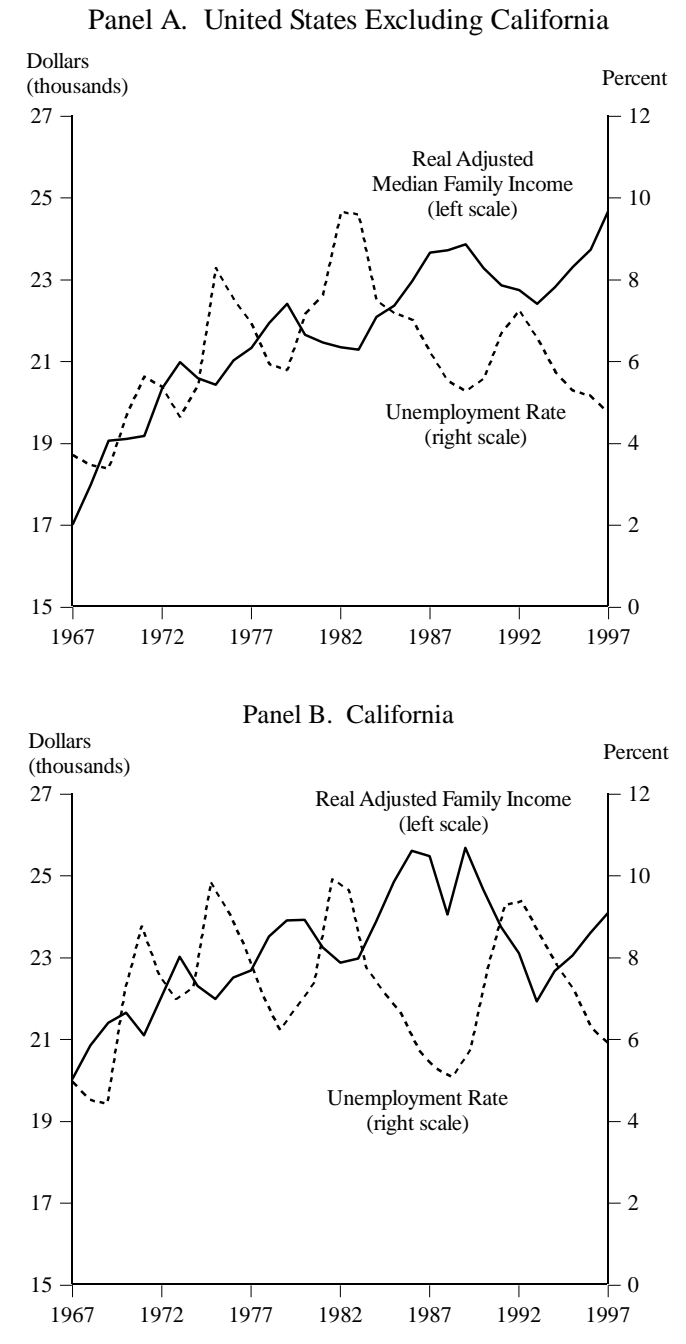
family income points in either the peak or the trough years over this period, this growth was not accomplished smoothly. There were periods of rising income and falling unemployment—1975 to 1979 and 1982 to 1989—as well as periods of economic decline—1973 to 1975, 1979 to 1982, and 1989 to 1992. The patterns were similar in California, although, as shown in Panel B, the 1990 recession was longer and deeper in California. Under these circumstances, a random choice of starting and stopping

years could yield upward, downward, or constant measures of economic status. Consequently, the results presented here focus on how families fared from peak to peak years of three business cycles, namely 1969–1979, 1979–1989, and 1989–1998.[1]

2.2. Data

Studies of income growth typically rely on data from the March Current Population Survey (CPS). The March CPS is an annual cross-sectional survey of a nationally representative sample of more than 50,000 U.S. civilian households (5,000 households in California) containing detailed questions about household composition and sources of income.[2] These data are used to trace changes in the distribution of real income in California and the rest of the U.S. between 1969 and 1998.[3] The data can be weighted to represent populations in both California and the rest of the U.S.[4,5] In most of the analysis, the focus is on the years 1969, 1979, 1989, and 1998. These years represent either business cycle peaks or ongoing expansions, so that the analysis of changes over time will be relatively unaffected by underlying business-cycle determinants of inequality.[6]

Throughout the analysis it is important to remember that the CPS is a cross-sectional survey designed to collect data from a different sample of households each year. Thus, it cannot be used to track the progress of individuals or specific families over time. Rather the results presented here show how the real incomes of families in predefined income groups (e.g., families below the 25th percentile of the income distribution) compare with those of equivalently defined families in other time periods.

2.3. Measuring Economic Status

We measure economic status in terms of income. Because most people share resources within families, the family is usually considered the appropriate unit for collecting information on economic status. That approach is followed here. In households containing one family, family income is calculated as the sum of the sources of income for all family members during a calendar year. For multifamily households, family income is computed in one of two ways depending on whether or not the families in the household are related. For households that contain multiple families related by blood or marriage (including multi-generational families), the resources of all families are pooled to form total family income, under the assumption that related families sharing living quarters share income in the same manner as nuclear family units. In multifamily households containing unrelated individuals, each individual (or family) is treated as a separate observation dependent only on his or her own income. Income in the analysis refers to pre-tax post-transfer real resources.[7] All incomes are valued in 1998 dollars using the Personal Consumption Expenditure (PCE) Deflator.

There are many reasons why family income is less than an ideal measure of economic status (Moon and Smolensky 1977). One of the most important is differences in family size. To account for the fact that $20,000 a year provides a higher standard of living for a single-person family than it does for a family with multiple members, all incomes are adjusted by the number of persons in the family. In general, the well-being of family members depends on income per member. However, as noted by a variety of researchers, given a particular level of total income, well-being per member does not decline by the same amount for each additional family member added, due to economies of scale in consumption. Therefore, the adjustment factor applied in this analysis proceeds as follows. Letting T denote total family income and F denote family size, equivalent family income is defined by:

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1. Because we have not reached the peak of the 1990s business cycle our analysis will underestimate the net peak-to-peak gains over the 1990s business cycle. Nonetheless, other 1989–1998 comparisons provide a relative pattern which is unlikely to be greatly altered as additional years of information become available.

2. The files also include Armed Forces personnel living with civilians. However, these households are excluded from the analysis.

3. Between 1969 and 1998, several changes were made to the Current Population Survey. See Reed, Haber, and Mameesh (1996) for a discussion of these changes and their effect on inequality measures.

4. See Reed, Haber, and Mameesh (1996) for a description of the representativeness of the March Current Population Survey for California.

5. The sampling weight is equal to the sum of the individual weights for all persons in the family unit. Thus, although the analyses are conducted at the family level, the results should be interpreted as characterizing the experience of individuals who constitute the associated population.

6. While there are no formal rules for choosing comparison years for measuring the change in economic well-being, it is important to distinguish changes due to a movement up or down in a business cycle from the longer-term changes that occur between two similar points in consecutive business cycles.

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7. To preserve respondent confidentiality, the Census Bureau truncates recorded income values at an upper limit (topcode). Previous research and our own examination suggest that prior to 1996 changes in nominal topcodes had little impact on changes in inequality. However, beginning with the 1996 survey (income year 1995), the Census Bureau recorded values for several topcoded variables at the group means of the actual topcoded incomes rather than at the topcode itself. For consistency with previous years of data, we recoded these variables to equal the topcode value and adjusted total family income accordingly in income years 1995–1998.

$$Y = \frac{T}{F^{\sigma}}$$

where $\sigma = 0.5$. This value lies at the midpoint of the range of assumptions regarding economies of scale in family consumption, and it has the virtue of being nearly identical to the implied equivalence scale used in the Census Bureau's official poverty thresholds (Ruggles 1990).[8] This adjustment is applied to most families identified in the data, the notable exception being related families that share living quarters, for which income and family size are totaled across the household.[9]

3. Trends in Income Inequality and Family Income Growth

Table 1 reports on two commonly applied summary measures of income inequality, the Gini coefficient and percentile point measures (see the Appendix for the formulas for computing these measures). The Gini is a measure of relative income inequality constructed by comparing the degree to which income is proportionally distributed throughout the population. When income is distributed equally the Gini coefficient equals 0; thus, higher values of the Gini index represent higher degrees of inequality. The percentile point measures calculate the ratio of the level of income held by individuals at different percentile points of the population. Table 1 reports values for three such measures: the 90/10, 90/50, and 50/10 percentile point ratios.

Table 1 shows that although income inequality increased substantially in both California and the rest of the U.S. during the past 30 years, the pace of growth in inequality was faster in California. Between 1969 and 1998 the Gini coefficient rose from 0.35 to 0.43 in California, a percentage change of about 23 percent. In contrast, in the rest of the U.S. the Gini grew by about 15 percent, rising from 0.35 to 0.40. Looking within this 30-year period reveals similar results; as measured by the Gini coefficient, income inequality grew faster in California than in the rest of the nation in every decade examined, with the difference in growth accelerating during the 1990s.

Table 1

Summary Measures of Real Adjusted Family Income Inequality

	Inequality Measures				Percentage Change over Business Cycle Peaks			Percentage Change over Entire Period
	1969	1979	1989	1998	1969–1979	1979–1989	1989–1998	1969–1998
California								
Gini coefficient	0.35	0.37	0.41	0.43	5.7	10.8	4.9	22.9
Percentile point measures								
90/10	5.7	6.7	8.7	10.2	17.5	29.9	17.2	78.9
90/50	2.1	2.2	2.4	2.6	4.8	9.1	8.3	23.8
50/10	2.7	3.1	3.6	3.9	14.8	16.1	8.3	44.4
Rest of the U.S.								
Gini coefficient	0.35	0.36	0.39	0.40	2.9	8.3	2.6	14.3
Percentile point measures								
90/10	6.0	6.7	8.2	8.6	11.7	22.4	4.9	43.3
90/50	2.1	2.1	2.3	2.3	0	9.5	0	9.5
50/10	2.9	3.2	3.6	3.7	10.3	12.5	2.8	27.6

Source: Authors' tabulations of March CPS data.

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8. Equivalence scales contain assumptions about the returns to shared living. An equivalence scale with an elasticity of 1 would imply that two individuals living together require twice as much income to be equally well off. Equivalence scales with an elasticity of 0 assume that a household with an infinite number of individuals can live equally well off the income of a single person household. Thus, an elasticity of 0.5 assumes that the true economies of scale lie directly in between these two

extreme values. See Burkhauser, Smeeding, and Merz (1996) for a discussion of the sensitivity of different equivalence scales in cross-national comparisons.

9. The equivalent income measure for related families that share living quarters therefore is constructed under the assumption that income and consumption are shared *across* sub-families in these households in the same way that they are shared *within* other families in the sample.

Although the Gini highlights the more rapid increase in inequality in California, it cannot pinpoint the movements within the distribution of income. The percentile point measures provide a first pass at identifying where the changes in the distribution of income occurred. Over the past three decades, the 90/10 measure nearly doubled in California and increased by more than 40 percent in the rest of the U.S. Like the Gini coefficient, the 90/10 ratio in California was similar to that for the rest of the U.S. through 1989, and then rose rapidly during the 1990s. The results for the 90/50 and 50/10 measures highlight some of the main differences between California and the rest of the U.S. during the 1990s. Between 1989 and 1998, the 90/50 and 50/10 ratios grew by about 8 percent in California, indicating an increase in dispersion at both ends of the income distribution. In contrast, in the rest of the U.S., the 90/50 ratio remained virtually constant between 1989 and 1998, and the 50/10 ratio grew by about 3 percent. These results suggest that during the 1990s the magnitude and character of income inequality in California departed from that observed in the rest of the nation.

Another method of evaluating the income trends in California is to calculate the percentage change in income over time for each percentile of the income distribution. Figure 2 reports the results of such a calculation for California and the rest of the U.S. between 1969 and 1998. As the figure shows, between 1969 and 1998 family income grew more in the rest of the nation than it did in California across the entire distribution. During this period, real adjusted family income at the 90th percentile grew by 54.1 percent in the nation and 44.6 percent in the state. In contrast, at the 10th percentile, income grew by 8.7 percent in the nation but fell by 19.9 percent in California. These findings suggest that the divergence of California from the rest of the U.S. was associated more with limited increases in the level of income recorded for the bottom than with disproportionate increases in income levels among those families in the top percentiles.

Table 2 looks within the statistics reported in Figure 2 and summarizes trends in the income growth for selected percentiles of the income distribution at similar points in the business cycle. The first row shows the percentage change in adjusted family income from peak to peak of various business cycles for families at the 20th percentile of the income distribution. As noted earlier, since this is cross-sectional data the results do not indicate how the same families have fared over time; rather, they show the differences in income levels among families at equivalent percentiles of the income distribution over time. Over the three major business cycles covered by this analysis, the income level of families in California at or below the 20th percentile declined by about 12 percent. Looking within the 30-year period, it is clear that the income levels of families in the bottom two deciles of the income distribution have been falling for some time. The real adjusted incomes of families at the 20th percentile declined by 4.1 percent

Figure 2

Percentage Change in Real Adjusted Family Income by Income Percentile (1969 to 1998)
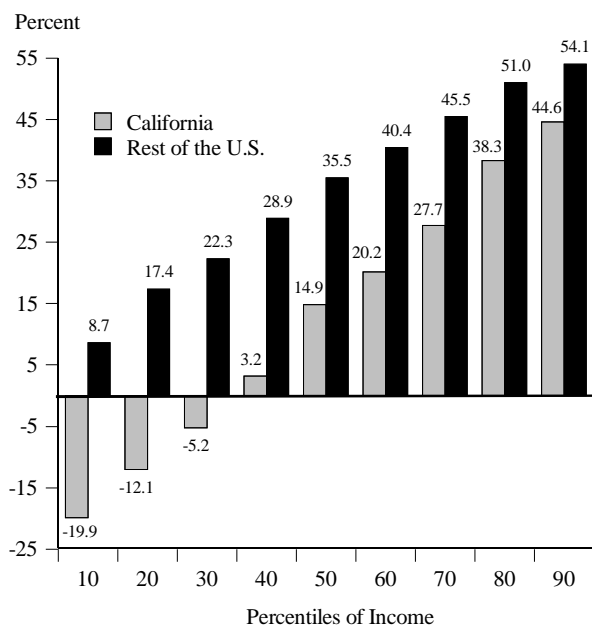

Table 2

Percentage Change in Real Adjusted Family Income by Income Percentile

Income Percentile	Business Cycle Peaks			Entire Period
	1969–1979	1979–1989	1989–1998	1969–1998
California				
20th	−4.1	−2.2	−6.3	−12.1
Median	11.7	7.4	−4.2	14.9
80th	18.6	12.5	3.6	38.3
Rest of the U.S.				
20th	10.1	−1.5	2.0	17.4
Median	17.7	6.5	8.1	35.5
80th	21.3	12.1	10.4	51.0

Source: Authors' tabulations of March CPS data.

from 1969 to 1979, by 2.2 percent from 1979 to 1989, and by about 6.3 percent from 1989 to 1998. In contrast, for the upper-middle portion of the California distribution, represented by the 80th percentile, real adjusted family income increased by nearly 40 percent between 1969 and 1998, growing in each of the three business cycles covered in the data. This pattern in which income levels at the bottom of the distribution fall while income levels at the top increase has been well-documented and is recognized as the main reason inequality increased so dramatically over the past 25 years.[10]

While the growth patterns for the bottom and top percentiles of the income distribution in California are well known, the recent patterns for the middle of the distribution are less well understood. Median family income in California increased by about 15 percent between 1969 and 1998. However, all of that improvement was realized between 1969 and 1989. Since that time, median income has fallen by about 4.2 percent, leaving the median family economically worse off than the median family in previous decades. The slow recovery of median family income in California occurs at a time when, elsewhere in the U.S., all percentiles of the distribution of family income have risen above 1989 peak levels (U.S. Bureau of the Census 1999).

The results in Table 2 and Figure 2 show that, in contrast to the rest of the U.S., the increasing income inequality in California has resulted from income declines at the bottom rather than income gains at the top.[11] The economic status of families occupying the bottom 20 percent of California's income distribution has fallen in each of the business cycle periods examined. In the most recent expansion, even those in the middle of California's income distribution find themselves with less family income than their counterparts at equivalent percentiles held in previous business cycle peaks. Finally, over the entire period observed, family income grew faster outside of California than it did in California, a difference which intensified during the 1990s. As a result, income inequality has grown faster in California than it has in the U.S. excluding California.

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10. The most comprehensive work on this subject is by Reed, Haber, and Mameesh (1996). The patterns reported here are consistent with their work, although the magnitudes differ slightly due to differences in the unit of income analysis (i.e., household versus family).

11. Burkhauser, Crews, Daly, and Jenkins (1999) find that in the U.S. most of the increase in income inequality over the past two decades came from improvements in the middle and upper portions of the distribution rather than from losses at the bottom.

4. Income Inequality and the Distribution of Income

While the trends reported above unequivocally point to faster growth in income inequality in California than in the rest of the U.S., they do not provide much detail about the distribution of individuals across particular income levels or about how the income levels of Californians compare to those held by equivalent families living outside of California. This type of information is important to understanding more fully what three decades of rising inequality have done to the absolute and relative well-being of families in California.

In the remaining analysis, we look more closely at movements within the income distribution in California and the rest of the U.S. Figure 3 compares the proportion of the population living in three groups defined by the ratio of income-to-needs. The income cutoffs for each income-to-needs groups are based on the poverty thresholds set by the U.S. Census Bureau and represent absolute categories of well-being that do not change over time. The definitions used in this analysis are as follows: (1) the below middle group includes those with incomes less than or equal to two times the U.S. poverty line; (2) the middle group includes

Figure 3

Percentage of Families Living
in Each Income-to-Needs Group
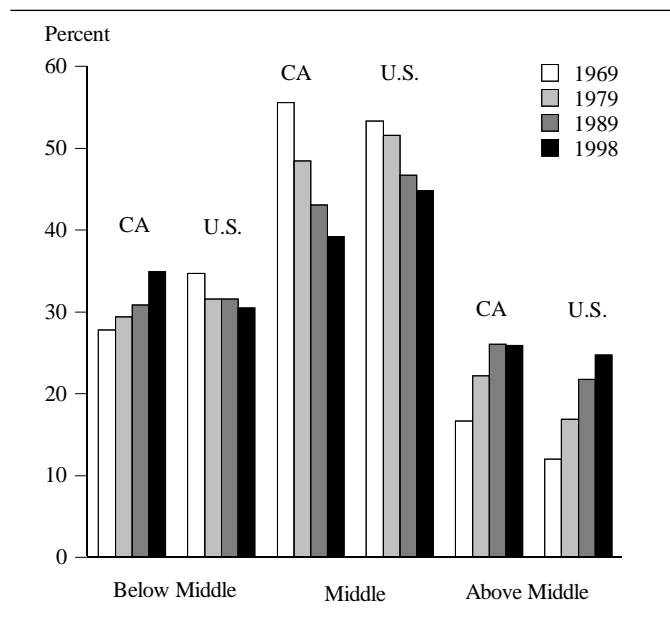
Note: U.S. refers to the United States minus California.

families with incomes between two and five times the U.S. poverty line; and (3) the above middle group includes families with incomes greater than or equal to five times the U.S. poverty line.

As the figure indicates, over the past three decades the percentage of the population in the below middle group increased by about 26 percent in California. In contrast, in the rest of the U.S. the percentage of the population in this category declined by nearly 12 percent. Like other researchers, we find that the middle of the income distribution declined between 1969 and 1998 in California and the rest of the U.S. However, the decline was far larger in California. Between 1969 and 1998, the middle income group in California decreased by nearly 30 percent, falling from 55 percent of the population to just 39 percent of the population over the 30-year period. In the rest of the U.S. the decline in the percentage of the population in the middle of the income distribution was smaller, about 20 percent between 1969 and 1998.

Although California did experience a larger decline in the percentage of families in the middle income group, the most important difference between California and the rest of the U.S. is where the displaced middle of the distribution moved.[12] Since we are not describing movements of individual families but rather of population mass, it is best to think of this exercise as defining how the population proportions in each income-to-needs group have changed over time. In California, a little more than 40 percent of the decrease in the percentage of the population residing in the middle of the distribution of family income went to the bottom of the income distribution; elsewhere in the U.S., the proportion of families residing in the lowest income-to-needs group actually decreased, meaning that the middle mass shifted to the upper part of the distribution.[13] Thus, while the middle class in both California and the U.S. were hollowed over the past three decades, the experiences of these groups differed greatly. In California, income inequality and the decline in rewards for those at the bottom of the distribution occurred along with an increase in the fraction of the population residing in those categories. In the rest of the U.S., the incomes of those at the bottom declined while the incomes of those at the top increased, but a larger fraction of the population experienced the gains than experienced the losses.

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12. Again, it is important to remember that the results do not refer to movements of individual families over time, but rather to changes in the distribution of individuals across the income scale.

13. This result is consistent with Burkhauser, et al. (1999), which finds that during the 1980s a majority of the "lost middle class" went to the upper end of the income distribution.

Another question important to policymakers in California is how the income levels of Californians fared relative to other families in the U.S. Looking at the percentage change in family incomes over time suggests that Californians have not experienced the same gains in income during the most recent expansion as have families elsewhere in the nation. However, the percentage change figures reveal little about the absolute levels of income in these areas or how the standard of living in California compares to that of families living outside of California. Figure 4 shows the dollar difference in real adjusted family income between California and the rest of the U.S. by percentile. When the line is above zero, families in California had higher real incomes than families in the rest of the U.S.; when the line is below zero, families in California had lower real incomes than families elsewhere in the nation. The four lines represent the four business cycle peak years used in the analysis: 1969, 1979, 1989, and 1998.

As Figure 4 shows, in each of the years except 1998, families in California had higher real adjusted incomes than families elsewhere in the United States at every percentile of the income distribution. The figure also shows how the differential percentage increases in family income

Figure 4

Dollar Difference in Real Adjusted Family Income between California and the Rest of the U.S. by Income Percentile
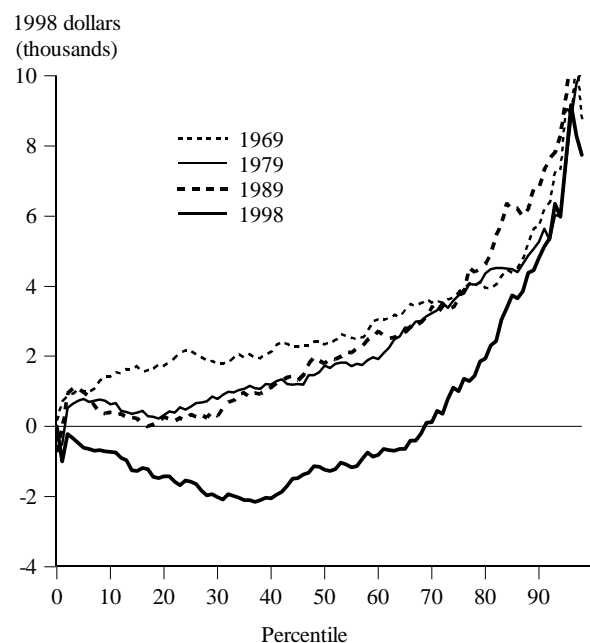
since 1969 (Figure 2 and Table 2) reduced the dollar difference in income levels between California and the rest of the nation, eventually eliminating it. As the relative income gains outside of California surpassed those realized by Californians, the dollar difference between incomes in the state and elsewhere in the nation decreased. In 1969, for instance, a family at the 10th percentile of the California income distribution had about $1,400 more than an equivalent family living elsewhere in the U.S. By 1989, this difference had shrunk considerably; the difference in family income at the 10th percentile was about $370 in 1989.

The most striking result in Figure 4 is the change in California's experience during the 1990s. In 1998, only families in the top 35 percentiles of California's income distribution had real adjusted incomes greater than their counterparts elsewhere in the U.S. Families occupying the remaining percentiles of California's income distribution had lower real incomes than those at equivalent percentiles elsewhere in the nation.[14] Thus, the 1990s was a time when many Californians had lower real incomes than other families in the U.S. and lower incomes relative to the historical experience of families living in California. Overall, the results for the population proportions in each income-to-needs group along with the dollar differences in family income by percentile between California and the rest of the U.S. show that not only did income inequality increase in California more than in the rest of the nation during the 1990s, but the increase was accompanied by a loss of the middle of the distribution to the lower tail and a decline in living standards relative to families elsewhere in the U.S.

5. Factors Contributing to California's Divergence from the U.S.

A natural question to ask about the divergence of California from the rest of the U.S. is what caused the change. A number of factors may explain this difference in the pace of income growth at the bottom of the income distribution in California and the rest of the U.S., including differences in industrial structure, the proportion of immigrants in the state, and the age, race, and educational structure of the population. Data from the CPS and the decennial Census show that California has a higher share of low-wage immigrants than other parts of the U.S. In addition, California has larger populations of individuals who do not have a high school education or who are on public assistance. Finally, much of the job growth in California

during the 1990s has been in industries with high skill requirements.

For any of these factors to make a significant contribution to the divergence of California from the rest of the U.S., the change in these variables in California would have to be larger than the changes taking place outside of California. This narrows the list slightly and allows us to focus on two potential explanations: demographic characteristics and business cycle effects.[15] (See Reed 1999 for a discussion of the effects of these factors on the male earnings distribution.)

5.1. Demographic Influences

To understand the extent to which changes in the composition of California's population have caused the income distribution in the state to deviate from that in the rest of the U.S., we perform a simple reweighting exercise that imposes the demographic structure of the rest of the U.S. on California in each year examined. The demographic reweighting adjusts for age, sex, race, and education. The results, shown in Figure 5 and Table 3, suggest that changes in demographic characteristics have affected the distribution of income in California relative to the rest of the U.S.

Figure 5 compares the dollar difference in adjusted family income by percentile in California and the U.S. in 1998 (as in Figure 4) to the dollar difference in family income between California and the rest of the U.S. when the U.S. age, sex, race, and education structure is applied. Figure 5 shows that in 1969 and 1979 California's demography helped keep real family income in the state well above levels realized elsewhere in the U.S. Thus, when the California population is made to look like the rest of the U.S. population, the dollar difference in real adjusted family income is reduced. This pattern is reversed in 1989, when California's demographic makeup held down the difference in family incomes in California and the rest of the nation; in other words, had the age, sex, race, and educational structure in California been the same as the rest of the U.S in 1989, the positive dollar difference in family incomes between California and the rest of the U.S. would have been larger.

The most dramatic impact of demographic factors occurred in 1998. Under the actual (unadjusted) distribution of income in California, only families in the top 30 percent of the California income distribution had real incomes higher than equivalent families living outside of

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14. When adjustments are made for the differential cost of living in California and the rest of the U.S., the magnitudes of the differences in 1969, 1979, and 1989 are reduced, and the magnitude of the difference in 1998 is raised (Reed, Haber, and Mameesh 1996 and Reed 1999).

15. Reed (1999) examines the influence of changes in industrial structure on the distribution of male wages in California and finds only a small impact over time. Therefore, we do not examine changes in industrial structure in our paper.

Figure 5

Demographic Effects on Dollar Difference in Real Adjusted Family Income between California and the Rest of the U.S. by Income Percentile
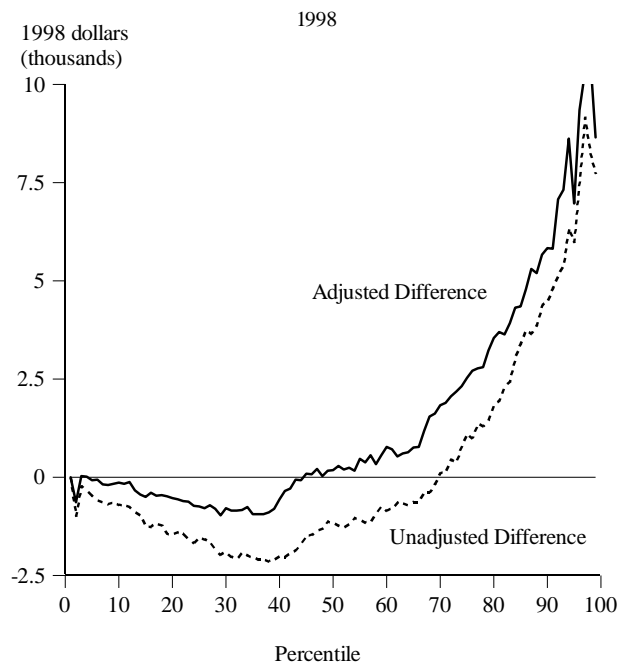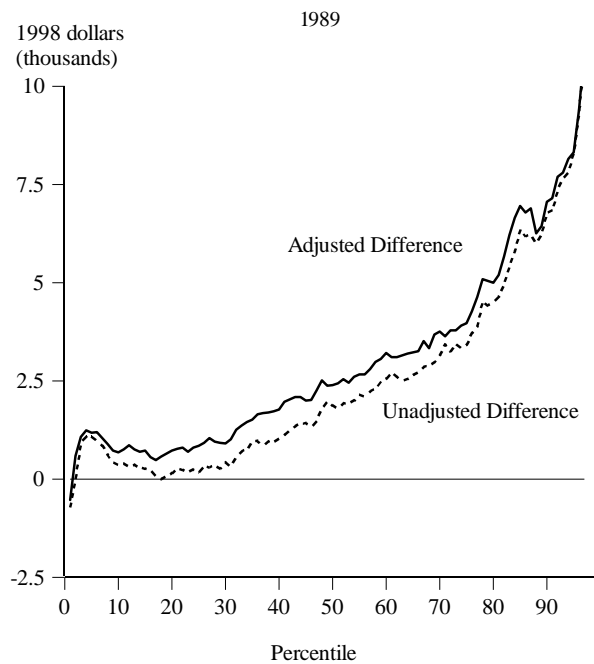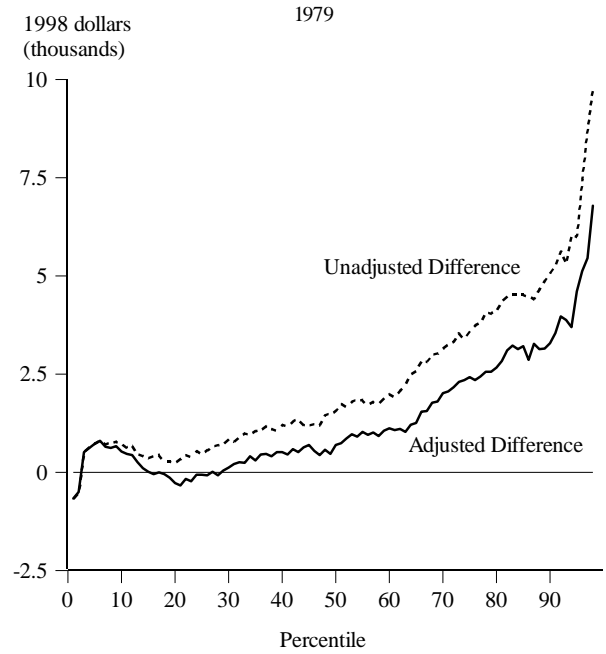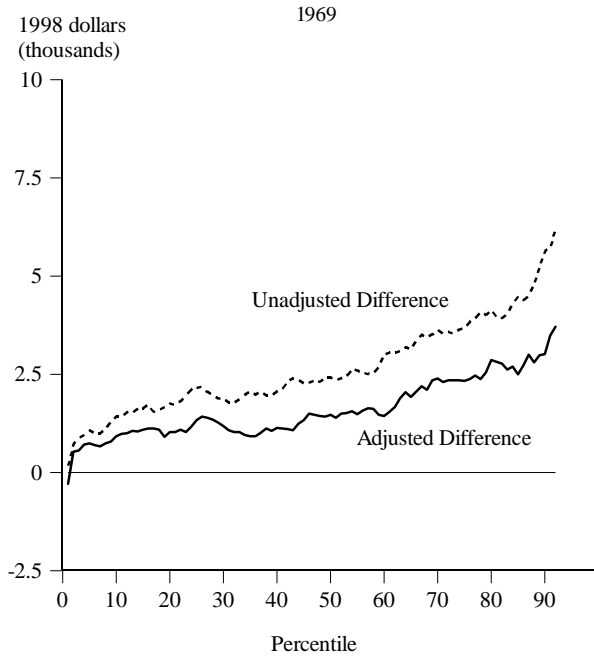
Note: Real adjusted family income is adjusted for age, race, sex, and education.

California. In contrast, under the adjusted distribution, families from the 40th percentile and above in California have real adjusted family incomes higher than their counterparts living elsewhere in the U.S. Thus, while demographic differences cannot explain all of the divergence of California from the rest of the U.S. in the 1990s, they do significantly diminish it.

Turning to Table 3, the same analysis is performed for the income inequality measures and other income distribution measures. Table 3 reports the percentage change in our four dispersion measures, three percentiles of the income distribution, and the proportion of the population residing in each of the three income-to-needs groups. These percentage changes are shown for California and the rest of the U.S. without demographic adjustments and for California adjusted for U.S. demographic characteristics. The California adjusted measures represent the outcomes in California between 1969 and 1998 that would have arisen had California maintained the same age, sex, race, and education structure as the U.S. in each of the four years we examine. The final two columns of the table report the difference in the percentage changes between California and the rest of the U.S. under the unadjusted and adjusted scenarios.

Looking first at the measures of dispersion, for the most part the demographic controls reduce the growth in income

inequality in California over the past 30 years. The notable exception to this general effect is for the 90/50 measure, which was unaffected by the demographic adjustment. The effects on growing dispersion are greatest for the 50/10 measure, suggesting that changes in demographic characteristics had the largest impact on the bottom half of California's income distribution.

The results on income growth also suggest that demographic changes have had the largest impact on the bottom half of the distribution. For example, between 1969 and 1998 the real value of adjusted family income for the 20th percentile in California declined by 12.1 percent. When we adjust the California population distribution to reflect the U.S. characteristics, the change in the real value of the 20th percentile rises by about 2 percent. Likewise, although median income in California actually rose by 14.9 percent during the past 30 years, if California had had the U.S. population composition, median income would have grown by more than 25 percent.

Finally, examining how changes in demographic characteristics have affected the distribution of California's population relative to our three income-to-needs groups supports the idea that California's changing demography added to the increase in dispersion of real adjusted family income. If California's demographic structure had not diverged from that of the rest of the U.S., the proportion of

Table 3

Demographic Effects on Real Adjusted Family Income and Income Inequality in California

	Percentage Changes, 1969–1998			Absolute Difference between California and the Rest of the U.S.	
	California Unadjusted	Rest of U.S. Unadjusted	California Adjusted	Unadjusted	Adjusted
Dispersion					
Gini coefficient	22.9	14.3	20.0	8.6	5.7
90/10	78.9	43.3	68.4	35.6	25.1
90/50	23.8	9.5	23.8	14.3	14.3
50/10	44.4	27.6	35.7	16.8	8.1
Percentiles					
20th	–12.1	17.4	1.9	–29.5	–15.5
Median	14.9	35.5	26.7	–20.6	–8.8
80th	38.3	51.0	48.7	–12.7	–2.3
Proportions of population					
Below Middle	25.6	–12.3	6.0	37.9	18.3
Middle	–29.5	–15.9	–26.5	13.6	10.6
Above Middle	55.6	106.4	85.6	–50.8	–20.8

Source: Authors' tabulations of March CPS data.

the population with incomes below two times the poverty line would have increased by just 6 percent, rather than the 25 percent increase that we observe.

Moving to comparisons between California and the rest of the U.S. (the last two columns) the results indicate that changes in demography account for about one-third to two-thirds of the differences in changes in real family adjusted income and income inequality in California and the rest of the U.S. between 1969 and 1998. The demographic adjustments for California lift the income levels of families at nearly every percentile of the income distribution, although the effects are largest for those in the middle and top. As a result, the demographic adjustments have less of an effect on income inequality than on the measures of changes in absolute income levels and relative growth. For example, while the demographic adjustment reduces the percentage change in the Gini by about one-third, the same adjustment reduces the increase in the proportion of Californians with real family adjusted incomes below two times the U.S. poverty line by about one-half.

In general, the findings in Figure 5 and Table 3 indicate that California's population composition first had a positive and then a negative effect on the relative income performance of California during the past 30 years. In 1969 and 1979, California's demography served to raise income levels in the state above what families at equivalent percentiles outside of California were obtaining. Beginning in 1989 this pattern was reversed and demographic differences between California and the rest of the U.S. began to restrain income growth and income levels in the state. Thus, adjusting for demographic differences moves the income gains and real adjusted family income levels in California much closer to those experienced by families outside of California. This being said, even when these population characteristics are accounted for, there remain sizeable differences in outcomes between California and the rest of the U.S. during the 1990s.

5.2. Business Cycle Timing

In addition to changes in demographic structure relative to the rest of the U.S., California experienced a much longer and deeper recession in the early 1990s. Measured by changes in payroll employment growth, the U.S. economy outside of California began to recover early in 1992, when job growth turned positive. Less than one year later, total employment for the U.S. excluding California had surpassed its pre-recession peak. In California, payroll employment continued to contract until early in 1994. In addition, the number of jobs lost in California during the prolonged recession made for a slow return to pre-recession levels of employment. Total payroll employment did not surpass its pre-recession peak until January 1996.

According to these data, California's expansion is about two years behind that for the rest of the U.S. Thus, to evaluate how the rewards of economic expansion have been distributed in California relative to the rest of the U.S., it is important to move away from comparisons in calendar time and look at comparisons based on the number of years spent in economic recovery. The results of such an analysis are portrayed in Figure 6, which compares the percentile of the income distribution at which real family income surpassed its 1989 peak in California and the rest of the U.S. by the number of years of recovery. The first two bars show that after four years of economic expansion, families above the 79th percentile of the income distribution in California (top 21 percent) had real incomes greater than comparable families in 1989; outside of California, families above the 84th percentile had real incomes higher than equivalent families in 1989.

The fifth year of recovery produced similar results, with a greater percentage of families in California and the rest of the U.S. moving above pre-recession levels of income. Although data constraints prevent a comparison of California and the rest of the U.S. beyond five years of expansion, data for the rest of the U.S. for the sixth and seventh years suggest that the benefits of economic growth began

Figure 6

Income Percentiles Achieving
Income Higher than 1989 Peak
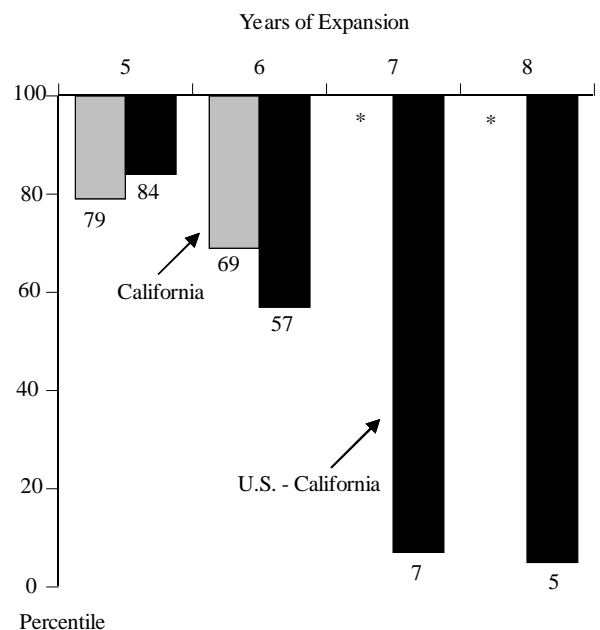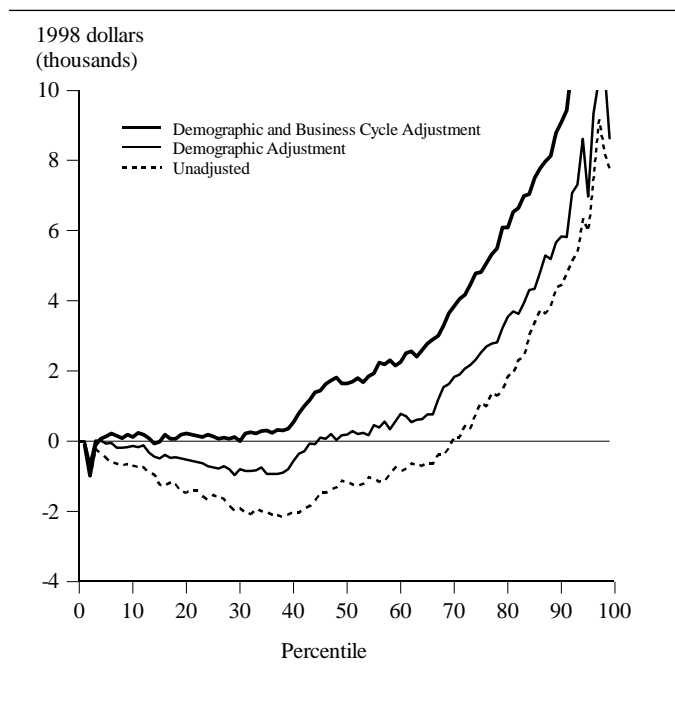

* California data not available

to be distributed rapidly as the recovery proceeded. By the sixth year of the U.S. expansion, less than 10 percent of the real family income distribution was below 1989 levels. By the seventh year, 1998, families at nearly all percentiles of the income distribution were better off than their counterparts in 1989.

Putting the results from our business cycle and demographic adjustment together, Figure 7 shows the dollar difference in income for California and the rest of the U.S. in 1998. Recall that since we are adjusting for differences in business cycle timing in California, the comparison in Figure 7 is between California incomes in 1998 and

incomes in the rest of the U.S. in 1996. California's demography is adjusted for the demographic makeup of the U.S. population in 1996, although separate analysis using the 1998 U.S. population composition showed little difference. The exercise in Figure 7 is to compare the unadjusted line (dotted) to the line with the simple demographic adjustment (similar to the line shown in Panel 4 of Figure 5) and to the line with both the business cycle and demographic adjustment included. The results support those shown in Figure 6, namely that business cycle timing matters. Combined, the business cycle and demographic adjustments succeed in lifting the real income level of Californians at nearly every percentile of the income distribution above the income values of those living outside of California.

6. Conclusions

By most measures, the California economy has recovered fully from its deep recession earlier this decade. Employment levels are high, unemployment is low, and personal income growth is consistently outpacing the U.S. average. Despite these strengths, many Californians feel left behind by the current expansion. Recent data seem to confirm these feelings; after six years of solid economic growth, a larger number of Californians are living in poverty, a smaller number are in the middle class, and a majority have family incomes below those observed in 1989, the last business cycle peak. Moreover, a majority of families in California have less income than comparable families living elsewhere in the U.S.

However, an examination of the causes for these disparities suggests that demographic and cyclical factors play a large role in determining the differences between California and the rest of the U.S. Deviations in demographic structure between California and the rest of the U.S. account for about one-third to one-half of the differences in measures of income distribution between the two areas. Further adjusting for differences in business cycle timing virtually eliminates the observed difference between California and the rest of the U.S.

Figure 7

Business Cycle and Demographic Effects on Dollar Difference in Real Income in 1998 between California and the Rest of the U.S. by Income Percentile

Appendix: Cross-Sectional Parametric Measures of Inequality Formulas Used for Computation

(A.1) The Gini coefficient:

$$\text{GINI} = \left[\frac{1}{2n^2\mu}\right]\sum_{i=1}^{n}\sum_{j=1}^{n}\left|y_i - y_j\right|,$$

in which y is individual income, n is the number of individuals, and μ is mean income.

(A.2) Percentile point measure:

$$\{(Y)_{py} / (Y)_{px}\},$$

where y and x are equal to percentile points of the distribution, and (Y) is real adjusted family income.

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The Separation of Banking and Commerce[*]

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In the wake of the passage of the Gramm-Leach-Bliley Act, the separation of banking from commercial activity is now one of the few remaining pieces of Depression-era banking law. In this article I explore the incentives that banks and commercial firms might have to affiliate. I also outline some of the reasons why legislators might be hesitant to permit such affiliations.

1. Introduction

On November 12, 1999, President Clinton signed the Gramm-Leach-Bliley Act (GLB) into law. This landmark legislation does much to unravel the influence of the Glass-Steagall Act on the United States' financial system. Now banks and other providers of financial services have far greater freedom to compete against each other. No doubt, the legislation will prompt an altering of the financial landscape in this country.

This article is not about the changes that will take place now that Glass-Steagall has been largely dismantled. Rather, this article focuses on the main piece of Depression-era financial legislation left intact by GLB—the forced separation of banking from nonfinancial activities.[1] This was hardly an oversight, as many of the architects of GLB argued purposefully for financial reform only on the condition that banking and commerce not be allowed to mix. Under the new act, a financial holding company can engage in only those nonfinancial activities that the Federal Reserve Board of Governors judges to be complementary to financial activity and that pose no threat to the safety and soundness of the depository institution subsidiary. Of course, banks now have the freedom to take equity in commercial firms through newly permissible merchant banking subsidiaries. But it is expected that banks will dispose of these equity claims within a reasonable window of time. Long-term control of commercial firms by banks is still restricted.

I seek to answer two questions in this article. First, why might banks and commercial firms want to own each other? Would bank and nonfinancial firm mergers allow firms to capture operating, funding, or other informational efficiencies? Second, why are lawmakers so hesitant to allow banking and commercial relationships? In making the case for repealing the Glass-Steagall Act, proponents of reform argued not only that there were social benefits to allowing banks to affiliate with other financial services firms, but also that the costs of allowing these affiliations were now very low. It was thought that financial markets and the economy in general had evolved to the point where the Glass-Steagall restrictions were no longer relevant—if, indeed, they ever were. The fact that lawmakers enacted financial reform suggests that this argument has been largely accepted. But does the same argument extend to the debate over banking and commercial affiliations? This is the main policy question in the paper. Have markets evolved to the point where the bad outcomes that the law was intended to guard against are now preventable through market discipline and improved regulatory scrutiny?

These questions are some of the most basic in economics. Whether or not banks and commercial firms would want to own each other is just another version of the question, "What are the boundaries of the firm?" The perceived dangers associated with unions between banks and nonfinancial firms cuts right to the heart of the debate concerning the strength (or fragility) of the financial system and the need for a regulator to ensure fair play in certain markets.

The paper is organized as follows. Section 2 provides background information on the laws governing banking and commercial relationships. Section 3 outlines the possible benefits that could be derived from banking and com-

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1. See Mester (1992) and Saunders (1994) for earlier surveys of the banking and commerce debate.

mercial firm unions. In short, I will argue that these benefits could come in the form of enhanced efficiency, be it operational efficiency or informational efficiency that could lead to lower funding costs for commercial firms. Section 4 addresses the potential dangers that could arise from banking and commercial affiliations. From a public policy perspective, the main fear is that these unions could stifle competition or lead to excessive risk-taking that would jeopardize the safety net. Section 5 concludes.

2. History, the Law, and Some International Comparisons

2.1. History

Historically, banks and commercial firms have been difficult to tell apart. Banking in England is said to have originated as an outgrowth of businesses such as goldsmithing and scrivening (see Kindleberger 1993). Firms that we recognize today as banks originated as "merchant bankers" whose principal role was to support trading activity. Many famous private banking houses began in this way (for example, the Medici bank, Meyer Amschel Rothschild, and the House of Morgan). Banks such as Chase Manhattan and Wells Fargo first emerged as the finance arms of commercial enterprises.

Restrictions of the kind found in U.S. banking law have their antecedents in medieval Europe. Interestingly, many of the original arguments cited for separating banking and commerce still are offered as reasons for continuing the separation. Early banks in Venice were not permitted to engage in certain import-export activities or trade in commodities such as copper and linens, partly for fear that these activities were too risky and partly for fear that banks would dominate the trade. According to Shull (1999), the Bank of England's charter forbade it from trading in merchandise. This clause apparently was inserted in order to placate British merchants who worried that the bank's monopoly in creating bank notes would give it a competitive advantage in other commercial markets.

In this country, the separation of banking from commerce was largely a reaction to the perception that banks wielded a disproportionate amount of economic power in the period leading up to the stock market crash in 1929. In the early part of the 20th century banks played a major role in the industrial expansion by providing both financial and advisory services. Cantillo (1998) reports that in 1912 bankers sat on the boards of (and presumably exercised influence over) companies accounting for 56 percent of GDP. Chernow (1990) writes that Pierpont Morgan, using his position as a board member of various railroad companies, tried to stabilize prices by encouraging competing lines not to encroach on each other's territory.[2]

The seemingly ubiquitous presence of bankers in the economy probably led to their downfall. In the years between 1912 and 1915 there were concerted attacks against the "money trust" of bankers. The public's suspicions about the undue influence of bankers may be summed up in the following story. Bankers sat on the boards of companies. From this position they could allegedly pressure companies into accepting expensive products and services from their banks. Also, the directors (who were bankers) allegedly could encourage the company to take actions that were not necessarily optimal from the stockholders' point of view but were designed mainly to repay bank debt.

Most of the claims in this story have since been challenged. DeLong (1991) acknowledges that bankers such as J.P. Morgan did earn above-average fees for services. But DeLong tests whether Morgan provided above-average service in return for these fees and finds that the presence of a Morgan man on a firm's board of directors had a positive effect on a firm's stock price. Cantillo (1998) finds similar evidence of the value of a relationship with Morgan. He documents declines in the value of "Morganized" companies when bankers unexpectedly resigned from their board positions. Thus, while having a banker on the company board may have been expensive, the stock market perceived these relationships to have added value to the firm. Finally, Kroszner and Rajan (1994) show that the market understood the possible conflicts of interest between banks' commercial and investment banking operations and demanded a discount on bank-underwritten debt issues relative to issues led by nonbank underwriters.

After the stock market crash and in the ensuing economic difficulty, banks had few political allies and were unable to avoid becoming scapegoats for the disaster. In 1933, the Glass-Steagall Act formally prevented banks from buying equities for investment purposes.

2.2. The Law

The separation of banking and commerce was codified in the Banking Act of 1933, also known as Glass-Steagall. This act defined in broad terms what types of securities commercial banks could hold.

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2. Railroads were vulnerable to price-cutting by competitors who built parallel lines. Morgan tried to broker deals in which railroads agreed not to encroach on each other's territory—i.e., Morgan encouraged price stability through the creation of cartels. The evidence suggests that he failed in these attempts.

The business of dealing in securities and stock by the [National Banking] *association shall be limited to purchasing and selling such securities and stock without recourse, solely upon the order, and for the account of, customers, and in no case for its own account, and the association shall not underwrite any issue of securities or stock* (12 U.S.C. 24).

Loopholes in the Glass-Steagall Act were quickly identified. The Glass-Steagall prohibitions applied only to commercial banks. Holding companies, which controlled both bank subsidiaries and nonbank subsidiaries, were not subject to the federal banking law unless they registered with the Federal Reserve—which most holding companies managed to avoid. Transamerica Corporation typified the far-flung scope of activities that could be housed under the same holding company structure, at one time engaging in banking, real estate, insurance, and even commercial fishing. These developments provoked the writing of a section in the Bank Holding Company Act of 1956 (12 U.S.C. 1843) prohibiting bank holding companies from acquiring "direct or indirect ownership or control of any voting shares of any company which is not a bank." Amendments to the act in 1970 restricted banks to engage in only those activities judged to be related to banking by the Federal Reserve Board.

In the other direction, U.S. law permits nonbank financial firms and nonfinancial firms to acquire voting shares in banks. However, this stake cannot exceed 25 percent of the bank's outstanding equity. Otherwise, the acquiring firm becomes a bank holding company and becomes subject to regulation by the Federal Reserve (12 U.S.C. 1841).[3]

2.2.1. The Unitary Thrift and Other Loopholes

While the separation between banking and commerce is strict in the United States, the separation is not absolute. It is legal for an individual to own controlling interests in both a bank and a commercial firm. Current law also allows both bank holding companies and national banks to hold up to 5 percent of the voting stock and up to 25 percent of the voting and nonvoting equity in any firm.

The best examples of U.S. depository institutions having the freedom to mingle with commercial firms come from the thrift industry.

The Savings and Loan Holding Company Act of 1967 (12 U.S.C. 1467) outlines the powers for unitary thrifts (thrift holding companies that control only one savings bank) and multiple thrift holding companies. Unitary thrifts are permitted to invest in a wide array of financial enterprises. Apart from meeting the conditions for qualified thrift lender status, there are no explicit restrictions on the aggregate level of activity at a commercial affiliate of the unitary thrift.

Large firms such as Ford Motor Company and Sears Roebuck took advantage of the unitary thrift loophole and entered the industry in the 1980s. Since then, however, most of these firms have sold their thrifts, leading to speculation that these purchases were motivated more by a desire to capture tax losses at troubled thrifts than by a desire to secure a toehold in the financial services industry.

In 1997, approximately one-quarter of the existing unitary thrifts used their commercial powers to operate in real estate development and either insurance sales or underwriting. As Table 1 shows, aside from real estate and financial activities, there is little discernible pattern to the nonfinancial thrift affiliates.

In the years leading up to the passage of GLB, there were a large number of applications for unitary thrift charters, mainly from nonbank financial companies that may have been hedging against the failure of Congress to pass financial modernization. GLB eliminates the commercial powers of the unitary thrift for all applications received after May 4, 1999. The commercial powers of existing thrifts terminate if they are sold.

2.3. International Comparisons

In contrast to the U.S., other developed countries have a more permissive approach to banking and commercial affiliations.[4] For example, Canadian banks can own as much as 10 percent of the voting stock of a nonfinancial firm, with aggregate holdings not to exceed 70 percent of the bank's capital; likewise, a single investor is not allowed to control more than 10 percent of a bank's shares.

Most members of the European Union adhere to the EC Second Banking Directive, which sets limits on the percentage of a bank's capital that can be invested in non-financial firms. No limits are set on the actual percentage of a commercial firm that the bank can own. In the reverse direction, outside investors and commercial firms are free to control banks. The U.K. also complies with the Second Banking Directive. However, banks that own more than 20

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3. In the 1970 amendments to the Bank Holding Company Act, banking was defined as the activity of accepting deposits and making commercial loans. This definition allowed commercial firms to buy "nonbank banks," or institutions which did not meet one of the criteria to be considered a bank. Congress closed this loophole in 1986 and capped the future growth of the nonbank banks.

4. See Barth, Nolle, and Rice (1997) for a discussion of bank regulation abroad.

Table 1

Nonbanking Activities of Unitary Thrift Holding Companies: 1997

Activity	Number of Thrifts Engaged	Activity	Number of Thrifts Engaged
Real Estate Development/Management	51	Car Rental	1
Insurance Sales/Underwriting	27	Dairy Farming	1
Equity and Fixed Income Investment	12	Data Processing	1
Broker-Dealer	8	Electric Utility	1
Hotel Owner-Operator	4	Energy Exploration	1
Mutual Fund Management	4	Entertainment	1
Pension Fund Management	4	Fast Food Operations	1
Financial Asset Management	3	Food-Bulk Sales	1
Manufacturing	3	Fuel Hauling	1
Telecommunications	3	Grocery Stores	1
Travel Agency	3	Management Services	1
Auto Sales	2	Movie Theatres	1
Canadian Credit Union League	2	Pharmaceuticals	1
Consumer Goods	2	Software	1
Convenience Stores	2	Title Abstract Company	1
Broker-Servicer	1	Transportation	1
Country Club Development	1	Waste Collection	1

Source: Office of Thrift Supervision, *Holding Companies in the Thrift Industry Background Paper,* April 1997

Note: There are 102 unitary thrift holding companies included in the above count. The same holding company may be counted for more than one activity.

percent of a nonfinancial firm must deduct that investment when calculating their risk-based capital. Commercial firms are free to buy banks, subject to the approval of the Financial Services Authority.

In Japan, the story is somewhat different. Japan's antimonopoly law prevents banks from holding more than 5 percent of another firm's shares. However, the postwar Japanese economy has been dominated by loose-knit groups of firms (keiretsu) organized around a lead bank. It is not uncommon for keiretsu members to hold shares in each other. For most of the large keiretsu, such as Mitsubishi and Sumitomo, internal group holdings can account for as much as 25 percent of the total group equity. Thus, it is possible that a bank can informally control a much larger stake than 5 percent through the cross-holding structure.

In sum, European and Japanese banks have more commercial powers than do U.S. banks. I will refer to the behavior of banks in these countries when discussing the benefits of allowing banking and commercial firms to affiliate. These international comparisons are at once extremely useful and potentially misleading for the task at hand. On the useful side, such international comparisons represent data, without which our discussion of the benefits and costs of reform would be based mainly on speculation. But these comparisons cannot be taken too literally, either. Banking regulations are not the only points of difference between the countries being compared, with the

most obvious point of difference being the evolution of capital markets in the various countries.

3. The Potential Benefits of Banking and Commercial Affiliations

What are the boundaries of the firm? The not too helpful answer is that a firm will organize certain activities internally when doing so is cheaper than keeping those activities external to the firm. The mixing of banking and commerce can potentially come about in many different forms. Banks may want to enter nonfinancial activities, and commercial firms may want to enter banking. Banks may want to take an equity stake in a commercial firm, and likewise for commercial firms. The forms of mixing banking and commerce differ depending on the firms' and banks' motivations.

Much of the first part of this section is concerned with the ways that banks and commercial firms might combine to reduce operating costs or to increase revenues. In this discussion, the mixing of banking and commerce could take the form of banks (commercial firms) engaging in commercial (banking) activities, or simply buying companies (banks) that engage in these new activities.

The second part of this section concerns the role of information in determining the scope of the firm, which economists began to stress starting in the late 1970s. If information asymmetries make it difficult for a firm to

raise finance or to contract for the performance of some activity, then the theory states that the firm will internalize these activities (see Hart 1995). In this case, the mixing of banking and commerce takes the form of an equity investment.

3.1. Operating Efficiencies

First and foremost, mergers in any industry are thought to be a source of operating cost savings. These cost savings could come in two different ways. If an organization is able to lower the average cost of production by increasing the scale of production, then economies of scale are said to be present in the industry. Alternatively, if an organization is able to lower its average cost of production by increasing the scope of its operations, then economies of scope are said to be present.

Natural candidates for industries with economies of scale and scope are those where production entails large fixed costs, and banking certainly fits this description. Banks incur large fixed costs when setting up branches, computer networks, and data processing capacity. There also appear to be substantial fixed costs for banks seeking funding from capital markets.

The popular consensus in the banking industry in the 1990s has been that the chief aim of the merger wave was to realize economies of scale. This is reassuring because we should naturally expect to find economies of scale and scope in the banking industry before we conjecture that these economies exist in combined banking and nonfinancial activities, as well. However, establishing empirical evidence for the existence of scale and scope economies in banking has proved to be a surprisingly elusive task. Gillegan and Smirlock (1984) and Berger, Hanweck, and Humphrey (1987) find that commercial banks display economies of scale at low output levels but diseconomies of scale at high output levels. Mester (1987) finds no evidence of economies of scale in a sample from the savings and loan industry. Kwan and Wilcox (1999), however, present evidence that many of the gains in large mergers are obscured by accounting treatment.

These generally negative results are somewhat troubling, and tests for economies of scope at banks are no more encouraging. For the case of commercial banks, Gillegan and Smirlock find evidence of cost complementarities between the production of demand deposits and time deposits. But there appears to be little support to date for economies of scope in production of three or more outputs. Berger, Hanweck, and Humphrey find no evidence for economies of scope between demand deposits, time deposits, and loans (real estate, commercial, and installment). For the case of thrifts, Mester finds no evidence of cost complementarities between loans (mortgage and other) and investments in real estate and securities.

The lack of scope economies in banking should not, however, lead one to conclude that there can be no cost complementarities between banking and other commercial activities. Quite simply, the experiment has yet to be conducted on a wide enough scale to reject the proposition out of hand. The strongest reason to believe that there are potential economies of scope is that commercial firms have entered into banklike activities already through finance company subsidiaries. These finance companies typically use the parent firm's knowledge of the product or the product demand as a funding advantage over traditional lenders.[5]

Another reason to believe in potential scope economies is that changes in technology have resulted in changes in banks' cost structures that might have taken place in other industries as well. Most of the existing studies try to detect scope economies in the joint production of traditional bank products. But to this author's knowledge, there have been no serious studies of how a bank might better deploy its networking capability, its data processing expertise, or the real estate that is a bank branch.

There could be a limited opportunity, then, for banking and commercial affiliations where elements of the cost function now overlap. To be sure, these kinds of relationships do not have the same allure to investors as, say, unions between banks and investment banks or insurance companies. But there is abundant anecdotal evidence that banks are seeking out these relationships already. Some banks with on-line banking capability have proceeded to act as Internet service providers to their customers. Banks with excess capacity in data entry and printing or publishing have sought to offer these services to outside customers. There are even examples of banks leveraging their real estate by setting up coffee shops in their branches. The striking feature about these examples is how diverse they are. Evidently, banking and commercial affiliations (that are currently permissible) arise out of a confluence of a particular need for a service in a particular market and the ability of a particular bank to provide that service.

If banking and commercial affiliations are motivated by the desire to realize scope economies, then commercial firms should have the same reasons to affiliate with banks as given above. Thus, if the law permitted, we should be equally likely to observe commercial firms buying banks as we observe banks buying commercial firms. But many commentators believe that commercial firms would be

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5. See Brennan, Maksimovich, and Zechner (1988) for a nice paper on how a commercial firm can use its finance company subsidiary to price discriminate.

aggressive competitors in banking. It is well beyond the scope of this paper to discuss whether banks are slower moving or less flexible than firms in commercial sectors. What might give credence to the viewpoint that banks would be likely merger targets is the potential for on-line delivery of banking services. For some types of banking services (e.g., payments processing) network externalities imply that the value of a product to a consumer is proportional to the total number of consumers. It is plausible that companies with established on-line networks would want to add banking services to their customers to facilitate e-commerce.

3.2. *Informational Efficiencies*

Much of the current research on firm organization focuses on the informational problems in the economy. This research program has done much to shed light on what kinds of informational problems can be overcome by what kinds of contracts. For the purposes of studying banking and commerce, one of the more important products of this research is a justification for the existence of financial intermediaries. If investors need to monitor firms in order to verify their output, and if monitoring is expensive, then it is efficient for investors to invest their capital through an intermediary (a bank), which then monitors on behalf of everyone. Townsend (1979) and Diamond (1984) prove that the debt contract is the optimal investment contract in such a setting.

Since then, many researchers have constructed models where intermediaries have incentives to take more complicated, state-contingent claims.[6] But the Townsend and Diamond result provides an important intuitive benchmark. If the assumptions of their models are realistic, then banks should have no desire to take equity claims in a firm.

There are two particular assumptions in the Townsend and Diamond models that deserve closer inspection. First, the monitoring scheme in their models is deterministic, meaning that there is no ex-post renegotiation of contracts. A second important assumption concerns the type of informational problem in the economy: Investors have difficulty verifying the firm's output, but there is no need to verify effort, evaluate the relative risks of alternative investment projects, or judge a firm's managerial performance on an ongoing basis. Both of these assumptions represent simplifications of the real world, and relaxing these assumptions is a natural way to explore the possibil-

ity that banks might have informational reasons to affiliate with commercial firms.

We turn first to the monitoring scheme. It is easy to find real world examples where lenders do not automatically force defaulted borrowers into bankruptcy but choose to renegotiate instead.[7] In the U.S., banks frequently swap debt for equity when borrowers become distressed. James (1995) studies the characteristics of bank participation in corporate restructurings between 1981 and 1990 and finds that banks take equity in approximately 30 percent of restructurings. Banks are selective in their equity holding, agreeing to swap debt for equity only when subordinated creditors also restructure their debt. This finding is interpreted to be consistent with the story that banks, which are senior creditors, are loath to restructure when too many of the benefits accrue to the less-secured creditors. Another interesting finding is that banks tend to take equity in firms that have good growth options.

If banks are willing to renegotiate debt for equity when a firm is in danger of filing for bankruptcy, is it possible that banks would want this option at an earlier stage? Historically in the U.S., there have been limitations on how much of such a renegotiation could take the form of equity. Thus, it is useful to look abroad for examples of this behavior. In Japan, we observe that banks actually specialize in leading restructurings. Hoshi, Kashyap, and Scharfstein (1990) study a sample of Japanese firms that enter financial distress and find that firms with keiretsu membership are more likely to emerge from financial distress than firms with no formal group or bank relationships. The reason, the authors argue, is that distressed firms within the keiretsu can borrow and then invest more than the stand-alone firms do. Thus, the formal bank relationship appears to have aided distressed firms when raising capital. The authors offer this finding to explain why Japanese firms were so much more highly leveraged than U.S. firms during the 1980s. Of course, dependence on bank debt can have its drawbacks when the banks themselves fall into distress. Kang and Stulz (2000) document how Japanese firms with greater proportions of bank debt invested less than firms without such bank dependence between 1990 and 1993.

The easing of financial constraints through equity holding is made possible by the flow of firm-specific information. An insider bank can make more accurate assessments of the risks facing the firm than an arm's-length bank can. But once banks have insider status, it is possible that they

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6. Notably, Bester and Hellwig (1987), Pozdena (1991), and Santos (1997).

7. Mookherjee and P'ng (1989) show that when a principal is risk-neutral and an agent risk-averse, then optimal monitoring should be stochastic, not deterministic. Further, given stochastic monitoring, the optimal contract is never a debt contract.

can provide additional services. Corporate control is allegedly one of the principal roles played by German banks. German banks typically hold voting shares of commercial firms as part of their long-term portfolios. The voting power of these shares is enhanced by the fact that German banks often serve as proxies for small shareholders. Banks also take a more formal role in firm affairs through their membership on supervisory boards.

Gorton and Schmid (1996) provide empirical support for the proposition that equity block holdings by German banks led to improved firm performance in the year 1974, while block holdings by nonbank firms did not lead to improved performance. In 1974, at least, German banks were "special." By 1985 however, this advantage over non-banks had disappeared. Firms with large blockholders still outperformed firms with more diffuse ownership structures, but the source of this superior performance could no longer be attributed to banks. Gorton and Schmid attribute these results to the fact that the efficiency and liquidity of the German capital markets improved over the course of the study. Evidently, German banks were good at providing corporate control at a time when, for whatever reason, the capital markets failed to do so.

The U.S. stock market is thought to be least efficient and least liquid in the small cap segment. A large proportion of small businesses are not even publicly traded. The question arises whether U.S. banks, if permitted, would want to play a role in corporate control for these small firms.[8] Kroszner and Strahan (1998) acknowledge that banks may have the economic incentives to play a role in corporate control, but claim that banks still face legal deterrents. They point out that the Bank Holding Company Act has long permitted bankers to sit on the boards of nonfinancial firms. Bankers, however, have exercised a fair degree of caution about which boards they sit on. Specifically, bankers sit on the boards of companies that are large, have low volatility, and have high ratios of tangible assets to total assets. The authors claim that this fact can be explained by the legal doctrines of equitable subordination and lender liability. A director (who is a banker) deemed to have made decisions that contributed to a firm's bankruptcy can be held liable to creditors. From a bank's perspective, this means not only that the bank could be named in a lawsuit, but also that the bank could lose its status as a senior creditor.

The equity claim provides its holder with information and voting power over the issuer of that claim. Unlike the operational reasons cited in the previous section, all of the in-

formational reasons suggested for bank affiliations with commercial firms have called for one-way ownership—banks should acquire equity stakes in commercial firms, not the other way around.

To conclude this section, I note that more has been written on the potential informational incentives for banks to affiliate with commercial firms than on the operating efficiency incentives. In some respect, this bias is natural, as the former topic is more amenable to theoretical research, and the latter is difficult to comment on without data. The historical record in the U.S. and research about the role of banks in Germany and Japan all suggest that bankers have stepped in to solve the informational problems between firms and investors. At the same time, few would argue that differences in per capita wealth and other measures of prosperity between the U.S. and Germany and Japan can be attributed to differences in the degree of commercial power enjoyed by banks in the different countries. Informational asymmetries between investors and firms seem to get solved eventually—if not necessarily by banks.

4. The Potential Costs of Banking and Commercial Affiliations

Policymakers should have no objections to mergers that lower operating costs or improve the flow of information between firms and their investors. The objections focus instead on potentially adverse outcomes that could arise from bank and nonfinancial firm affiliations. At the heart of these objections are fears that banks may have incentives to behave badly and possibly defraud other market participants. If banking markets or commercial markets are not perfectly competitive, then there is a possibility that a bank or commercial firm earning rents in one market can exploit this advantage in the other. Perhaps the most serious regulatory problem posed by banking and commercial affiliations arises because banks are partially subsidized by their access to the federal safety net and might have incentives to shift the risk from their commercial operations to the government.

4.1. Conflict of Interest

It is not hard to imagine scenarios where bank dealings with commercial firms could be marred by conflicts of interest. For example, as was widely suspected at the time of the Glass-Steagall Act's passage, banks potentially could help firms issue bonds and use the funds to pay off their bank loans, all to the advantage of the bank and the disadvantage of the bondholders. Bankers also could use their

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8. Even though banks have expanded merchant banking powers under GLB, banks are not permitted to take part in the day-to-day operations of firms in which they have taken equity.

knowledge as insiders at a firm to trade profitably in the firm's securities.

Some of these concerns have been analyzed more formally. Berlin, John, and Saunders (1996) show that banks might have incentives to hold equity in financially distressed firms if banks could fool the market during a restructuring. This deception could take the form of the bank misrepresenting the true state of affairs at a company and profiting by the subsequent market overvaluation. Boyd, Chang, and Smith (1997) present a model where a bank might have the incentive to hold equity if equity ownership enabled the bank to share with management the consumption of perquisites or diverted funds.

Whether these bad outcomes would actually materialize in a world where banks have commercial powers is an open question. In Kroszner and Rajan (1994), there is evidence that, prior to Glass-Steagall, securities underwritten by banks were discounted in the market relative to securities underwritten by nonbanks. One lesson that can be drawn from Kroszner and Rajan's work is that whenever the market perceives a possibility of fraud or conflict of interest, that risk will be priced. Also, much of the incentive for bad behavior cited in the papers above would be balanced by the need for the bank to preserve its reputation. That said, there exist countless examples where market discipline was unable to deter fraud by an institution or, particularly, by an individual within that institution.

4.2. Competition

One of the chief reasons for originally separating banking and commerce was a desire to curtail the amount of economic power in bank hands. It has been a relatively new phenomenon for firms to tap capital markets directly for financing. With banks having control of one of the most important factors of production—capital—there was a fear that a bank with a substantial equity stake in a firm might deprive the firm's competitors of financing in order to earn a greater return on its equity investment. Such behavior would be profitable if the additional return on the equity investment exceeded the opportunity cost of denying the loans. This story can readily be extended to include the bank providing cheap finance to the firm's suppliers and customers or withholding finance to the competition's suppliers and customers.

One must ask under what circumstances a bank would behave this way and whether a bank's actions would have a detrimental effect on the economy. The answer to the second question is obvious. Any successful attempt to stifle competition leads to distortions and a misallocation of resources. As for the first question, however, banks would engage in this type of behavior only in a setting where competition was already imperfect. Firms being discriminated against must not have alternative sources of finance.

In previous eras it has been clear that there have not been enough banks to ensure competitive practices. Indeed, many of the early European banks were granted monopoly bank charters. In the United States, there are a large number of depository institutions and, with the adoption of interstate branching, competition would seem to be strong. But at the same time there has been a steady trend of consolidation in the banking industry over the past 20 years.[9] Local banking markets are becoming more concentrated, and there does appear to be evidence that this concentration results in less than perfectly competitive banking markets. In retail banking, Hannan and Liang (1991) reject the hypothesis that banks are price-takers in the market for demand deposits and for money market deposit accounts. They also find evidence that banks wield relatively more market power in small, concentrated banking markets.

But one must be cautious before extending these results to other markets, such as the market for commercial loans. Empirically, it is difficult to duplicate Hannan and Liang's study for commercial loans because it is difficult to define price-taking behavior. Loans are differentiated commodities, potentially differing by price, risk, term, and type of collateral. What is clear, however, is that the number of financial institutions making these types of loans has increased even while the number of banks serving these markets has declined. Newly available data on small business lending typically reveal that there are far more small business lenders in a given market than there are banks with full service branches (see Beauchamp and Krainer 1999).

In short, even though the banking industry appears to be consolidating, it does not immediately follow that this consolidation will have a negative impact on firms' access to credit. Indeed, much of the rationale behind banking consolidation quoted in the popular press suggests that banking consolidation is a reaction to increasing nonbank competition.

4.3. The Safety Net

Perhaps the greatest source of risk in allowing banking and commerce to mix is the threat to the safety net. Federal deposit insurance covers the accounts of depositors up to

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9. See testimony of Governor Laurence Meyer (1998).

$100,000. There are, of course, examples where regulators have declared certain institutions "too-big-to-fail" and provided total insurance to depositors. Another component of the safety net is the Federal Reserve's discount window. If banks are having difficulty meeting their overnight reserve requirements or are suffering from some short-term drain on their liquidity, the Fed lends to these banks at the discount rate. Yet another feature of the safety net is a bank's access to the payments system through Fedwire—particularly, the ability of banks to run daylight overdrafts with the Federal Reserve.

The significance of the safety net to this discussion is that it renders the bank's liabilities less risky, allowing banks to raise funds at reduced rates. At first glance, subsidized borrowing appears to be a simple transfer from the public to the bank, no different from a tax break that lowers the bank's costs. If the bank is located in a holding company and is allowed to lend to the parent or to upstream dividends, then the subsidy escapes the bank and can potentially be shipped to other subsidiaries in the holding company.

Problems begin to emerge when one fleshes out the competitive environment in which the holding company subsidiaries operate. Consider a simple example where a holding company controls both a bank and a commercial firm and exports the bank's funding subsidy to the commercial firm. Competition in the commercial firm's product market should cause the firm to pass on its lower costs to its customers. The amount of subsidy that leaks out will depend on the demand for the commercial firm's products. If demand is elastic, then a drop in price will coincide with a demand for higher quantities. This is the fear of many regulators. Allowing the safety net subsidy to trickle out of a bank will result in an enlarging of the absolute value of the subsidy passed on from the government to the private sector.

While a holding company could shift subsidized funds to its commercial affiliate, it also could shift bad assets from the commercial affiliate to the banking affiliate. A bank could buy assets from the affiliate at inflated prices, or it could lend money at below-market rates in order to effect a capital infusion to the affiliate. Walter Wriston, the former head of Citibank, is quoted as saying that it was "inconceivable that any major bank would walk away from any subsidiary of its holding company" (1981).

To be sure, some of this behavior would be against the law. Transactions between a bank and its affiliates are governed by Sections 23A and 23B of the Bank Holding Company Act. Briefly, Section 23A limits the amount of loans to affiliates, investments in affiliate securities, and other "covered transactions" to 10 percent of a bank's cap-

ital plus surplus. Section 23B charges that all bank transactions with an affiliate must be at arm's length. If anything, Sections 23A and 23B would be bolstered in anticipation of banking and commercial affiliations. However, many (notably Corrigan 1987) question whether it ever will be feasible to construct Section 23 firewalls with no loopholes.[10]

Regulators are understandably anxious not to extend the safety net beyond its current scope. At best, allowing an expansion of the safety net creates a competitive imbalance. At worst, links between banking and commercial firms would create incentives that would lead to a higher probability of the safety net being tested. Starting with Merton (1977), observers have pointed out that deposit insurance grants an option to banks, and when a bank is close to default, the way to maximize the value of this option is to increase risk. Commercial ventures provide a host of ways for firms to increase risk. Regulators try to temper these risk-taking incentives by monitoring banks and through formal examinations. Clearly, this supervisory task would be more difficult if banks had commercial affiliates. One of the primary implementation issues involved with the enactment of GLB is how financial holding companies will set aside regulatory capital to manage risk in their merchant banking and venture capital subsidiaries.

5. Conclusion

The banking and commerce debate is framed as a question of what are the benefits and what are the costs of permitting affiliations to take place. As is so often the case in weighing alternative policies, it is difficult to estimate these benefits and costs accurately without actually allowing the experiment to happen. History tells us that banks once had incentives to affiliate with commercial firms. But the modern-day economy, with its integrated financial markets, is so different from the economy before the Great Depression that it is unclear whether those same incentives exist today. Similarly, there are large structural differences between the United States and other countries that permit banking and commercial affiliations. Extrapolation from the experience of these other countries also might be misleading.

This survey has contended that the benefits of allowing banks and commercial firms to mingle are not likely to be

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10. See Shull and White (1997) and Walter (1996, 1998) for further discussions of the efficiency of firewalls.

huge. Banks have many competitors that intermediate in credit markets, such as finance companies and securities firms. Presumably these competitors provide expertise similar to that of banks in solving informational problems. Now that banks possess expanded merchant banking and venture capital powers, calls for more freedom to hold equities long term have diminished.

By contrast, it appears promising that opportunities will arise for banks to affiliate with commercial firms in order to capture operating efficiencies and synergies. While these opportunities are likely to be available only on a small scale, it is also likely that these opportunities will continue to grow because changes in technology imply that bank cost structures have become more similar to other firms' cost structures. GLB partially acknowledges these possibilities when it maintains that the Federal Reserve Board has the authority to define "those activities closely related to banking."

Even if the benefits of banking and commercial affiliations are likely to be felt on a small scale, it does not follow that the costs are also likely to be small. Policymakers have correctly identified worst-case scenarios where the federal safety net could be extended beyond the banking sector. While it is always desirable to let the market decide what kinds of industrial structures are optimal, care must be taken to ensure that the safety net is not exploited.

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