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## DEREGULATION, FIRM CAPABILITIES AND DIVERSIFYING ENTRY DECISIONS: THE CASE OF FINANCIAL SERVICES

Hilary Ingham and Steve Thompson\*

*Abstract*—The resource-based view of the firm as a historically-determined bundle of specific assets and capabilities predicts that diversification patterns will reflect attempts to utilize these attributes more intensively and so enjoy economies of scope. Furthermore, it suggests that such diversification moves will not be restricted to wholly-owned activities but will include joint ventures where contracting costs permit. This note uses the opportunity created by structural deregulation in U.K. financial services to examine entry decisions—wholly-owned and collaborative—across an unusually homogeneous set of firms. It is found that diversifying entry broadly follows firm-specific and product-specific characteristics, providing support for the resource-based theory in the service sector. However, as in manufacturing it appears that firm size is important, whilst the residual regulatory and ownership arrangements also exercise a significant effect.

### I. Introduction

There is an extensive literature on the diversification–performance association but—at least until recently (e.g., Montgomery and Hariharan (1999))—there have been comparatively few attempts to explain patterns of diversifying activity. Furthermore, most published studies (e.g., Lemelin (1982), MacDonald (1985) etc.) either rely entirely upon industry-level analysis or distinguish firms largely on the basis of their industries of origin or destination (e.g. Gorecki (1975)). However, there is a large and growing body of theoretical and conceptual work taking a resourced-based view of the firm, which sees diversification as the means of exploiting those economies of scope which arise from imperfectly marketable, firm-specific resources and capabilities. Penrose (1959) and Teece (1980, 1982) argued that economies of scope derive from the more intensive utilization of physical, human or organizational assets which may occur in the multiproduct firm. Recent contributions to the resource-based view of the firm (e.g., Amit and Schoemaker (1993), Barney (1991), Conner (1991), Dierickx and Cool (1989), Rumelt (1991) and Wernerfelt (1984)) have developed these insights

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to show how the strategic use of specific assets which are imperfectly tradeable and difficult to imitate may be employed to create firm rents.

A recognition of the potential role of specific assets in explaining diversification decisions poses two problems for empirical research. First, if any set of firms possesses resources and capabilities which are completely heterogeneous then each diversification decision is unique and attempts to discover empirical regularities are doomed to failure. Testing the resource-based approach requires samples that are homogeneous in the dimension of some characteristics whilst heterogeneous in others. Second, where transactions costs permit, a firm-specific asset may be exploited via market-based or collaborative arrangements as an alternative to the full ownership of new activities. This implies that traditional measures of diversification, based on employment or asset values, may fail to capture the spread of a firm's activities.

This note seeks to circumvent these difficulties by examining the product level diversification decision—spanning both full ownership and entry via affiliates/joint ventures—of an unusually homogeneous set of firms, following a change in regulatory regime. Between their nineteenth century origins and financial deregulation in 1986, the UK building societies (similar to the U.S. savings and loans) were strictly limited to a core business of deposit collection and residential mortgage lending. Since January 1987 those meeting a critical asset threshold have been free to enter a range of additional financial product markets, acquire other businesses, enter collaborative arrangements and to diversify into non-core activities. Thus, financial services deregulation created an economic experiment by generating carefully defined opportunities for a homogeneous set of firms.

The note examines the diversification choices of a sample of 47 firms (out of 49 extant meeting the size criterion) in 13 product markets, giving 611 observed decisions. It is found that diversification within financial services is not random but that it follows firm and product-market characteristics in a comparable manner to that reported by Montgomery and Hariharan (1991) for manufacturing. However, to this qualified support for the resource-based view of diversification must be added evidence of the continuing influence of ownership factors and regulatory arrangements. Collaborative arrangements appeared to be a widely-

employed alternative to sole ownership, particularly for smaller entrants.

Section II outlines the sample and provides a brief description of the changes in regulatory regime which generated its homogeneity. Section III discusses the empirical model and addresses specification issues. The results are reviewed in section IV and a conclusion follows.

## II. Structural Deregulation and the Generation of the Sample

In Europe, as in the United States, historically there has been intensive regulation of both the conduct and structure of financial services industries. Conduct regulation has been used to counter supposed market power, to provide depositor protection and to reduce the system-wide externalities which are believed to flow from institutional failure. Structural regulation typically limits entry to designated markets or restricts the permitted activities of incumbents in those markets. In addition to countering market power and promoting stability, structural regulation has often been motivated by concerns to direct resources to particular uses or localities or to limit risk-taking by financial intermediaries.<sup>1</sup> Whether or not these aims are achieved, structural regulation also has the consequences of segmenting markets and maintaining artificially homogeneous sets of firms.

During the past decade financial deregulation has weakened—if not eroded—structural restrictions in some U.S. and European markets. In the UK there was a progressive deregulation of the financial system in the 1980s. In the course of this process, the commercial banks entered a range of financial services markets for the first time, including those which had hitherto been the preserve of the building societies. The latter pressed for a liberalization of the restrictions on their own activities to permit cross-selling of other financial products.<sup>2</sup> The 1986 Building Societies Act granted them freedom to enter a wide range of financial markets but subject to several caveats: first, each society's total commitment to those non-core activities was not to exceed 10% of its total assets in 1988, rising to 25% by 1993; second, entry to the full set of activities was restricted to societies with commercial assets over £100m; and third, the newly permitted activities were themselves subject to specific regulation—particularly those involving the sale of investment products covered by the 1986 Financial Services Act. The effectiveness of

<sup>1</sup> If the regulator is also either the deposit insurer or lender of last resort to the intermediary there is an obvious motive to prevent the latter substituting high risk-high return assets for

the quantitative controls was reinforced by the societies' mutual ownership. As mutuals they could not issue equity and hence any net expansion of the asset base had to be financed from new deposits and strictly limited amounts of commercial debt.<sup>3</sup>

This study's target population consisted of those societies which met the £100m commercial asset threshold at the start of the new regulatory regime (January 1st 1987) and which still maintained independent existence in Autumn 1991. This gave 49 societies, although two refused to co-operate with our enquiries, leaving 47 in the sample.

Product categorization changes rapidly in financial services—not least in response to changes in taxation which create the scope for new tax-efficient forms. Accordingly, we followed the categories used in the industry's stockbroker reports which themselves follow closely those specified in the 1986 Act. Current reports, supported by telephone enquiries and, where necessary, postal follow-ups were used to determine whether or not the society currently offered the product and, if it did, whether that product was supplied by the parent company or fully-owned subsidiary or by an affiliate or joint venture with another firm. The products, with the number of supplying societies and wholly-owned suppliers, respectively, in parentheses were as follows: investment advice (36, 22), general insurance (45, 38), estate agents (real estate brokers) (23, 23), unsecured loans (40, 8), checking accounts (16, 6), credit cards (9, 4), ATMs (22, 1), personal equity plans (16, 10), unit trusts (16, 8), pension plans (22, 6), stockbroking (9, 2), off-shore foreign accounts (14, 14) and property development (25, 15). One additional product (non-residential secured loans) appeared to be offered by the entire sample and hence was ignored for comparative purposes.

The sample of 47 societies and 13 new products yielded 611 entry decisions. Of these, entry occurred in 292 cases (47.8%). In six cases only did a society use *both* entry modes and these were coded as fully-owned since this mode was presumed to involve the greater commitment. This meant the entry cases were divided into non-overlapping subsets of fully-owned ventures (157 cases, 25.7%) and affiliate/joint ventures (135 cases, 22.1%). The analysis of these decisions forms the core of the paper.

## III. Theoretical Considerations and Empirical Specifications

The research followed Lemelin (1982) and MacDonald (1985) in assuming a general entry model of the form:

$$P_{ik} = f[X_i, Y_k, Z_{ik}] \quad (1)$$

where  $P_{ik}$  is the probability of firm  $i$  entering market  $k$ ;

$X_i$  is a vector of firm characteristics;

$Y_k$  is a vector of product characteristics;

$Z_{ik}$  is a vector of interactions between  $X_i$  and  $Y_k$ .

However, unlike previous diversification studies our data set allows us to distinguish own entry from that using an affiliate or joint venture route. The latter strategy introduces costs of collaboration between independent partners.<sup>4</sup> Conversely, it may reduce the initial resource demands on the diversifying firm and offer a risk-sharing arrangement. A collaborative venture with an incumbent may, in addition, avoid or reduce the competitive impact associated with new entry into the destination product market. Of course, since either or both parties to a joint venture may provide necessary assets or inputs which the other partner does not possess, the predictability of collaborative activity is reduced: it not being possible to collect full information on potential collaboration.

The introduction of a second mode of entry creates a third choice outcome which complicates the estimation of the model. With two modes of entry, it is necessary to consider the structure of the mode choice decisions. Thus the choice could be made sequentially, thereby implying that societies first decide whether or not to enter and that only after the decision to enter has been made do they choose their preferred mode of entry. Computationally this is attractive since maximisation of the likelihood function for this model is equivalent to maximising the likelihood functions of the two separate binary models. Empirical testing, however, revealed the choices made by the societies at the two levels were not independent.<sup>5</sup>

Alternatively, the choice process can be modelled as a single, trichotomous, decision. Such a multinomial choice can be examined using either an ordered or an unordered model. The simple ordered model takes the form:

$$P(y = j|x, \alpha, \beta) = F(\alpha_{j+1} - x'\beta) - F(\alpha_j - x'\beta) \quad (2)$$

with

$$\begin{aligned} j &= 0, 1, \dots, m. \\ \alpha_0 &= -\infty, \\ \alpha_j &\leq \alpha_{j+1}, \\ \alpha_{m+1} &= \infty. \end{aligned}$$

<sup>4</sup> The problems of co-ordinating joint ventures between otherwise independent firms have been examined in detail in the literature on the multinational enterprise—see Caves (1982, pp. 85–90) for a review.

<sup>5</sup> Running a bivariate probit regression in which the mode of entry equation was restricted to those observations equal to one for the entry/non-entry equation yielded a significant cross-correlation of the error terms—this indicated the decisions at the two levels were not independent.

Such a model is appropriate if a single, unobserved, index variable  $y^*$  determines the outcomes by the rule:

$$y = j \text{ iff } \alpha_j < y^* < \alpha_{j+1} \quad j = 0, 1, \dots, m. \quad (3)$$

Recall that our dependent variable reflects states of no entry, joint venture entry and own entry. As these are proxies for the degree of the society's involvement in the market, the ordered model seems appropriate.

If underlying firm—and product—characteristics give rise to variations in the comparative advantage of wholly-owned and joint venture firms a multinomial model is appropriate. However, the multinomial probit is computationally prohibitive. Multinomial logit, though tractable, suffers the disadvantage that the coefficient estimates may be sensitive to the exclusion of particular choices—i.e., they are not independent of irrelevant alternatives (Maddala (1983)). In the event both ordered probit and multinomial logit results are presented, but the former are discussed in detail and the latter included largely to ensure consistency.

#### IV. Data and Estimation Results

##### A. Data

Previous studies, using manufacturing data, have reported R & D, industry growth and vertical linkages as significant industry-level influences on the diversification decision (MacDonald (1985), Lemelin (1982)). The concentration of both origin and destination industries also appears important—both as an indication of the ease of making an entry into another market and probably, as a size proxy for the diversity of firm resources (MacDonald (1985) p. 586). Montgomery and Hariharan (1991), in a test of the Penrose-Teece approach, use firm-specific variables—including research and advertising intensities, and the initial level of diversification—in an investigation of diversifying entry using line of business data.

By contrast, the present sample of firms had been restricted by regulation to the same core activity such that there was no apparent need to control for prior differences in industry characteristics, market structure or firm diversification. However, there was considerable intra-sample variation in the mix of human, physical and organizational assets used by societies to conduct their core business and in their size, financial structure and performance. Thus each society entered the new regime with a different, historically-determined set of resources and capabilities. The resource-based theory of the firm suggested that the extent of diversifying activity would be related to the relative abundance of those firm-specific assets relevant to the provision of the newly-permitted range of financial services. Whilst the literature on multiproduct

bank cost functions is somewhat ambiguous,<sup>6</sup> Litan (1987) identifies likely common inputs, in the provision of diversified financial services. Following his arguments the relevant firm-specific attributes likely to generate economies of scope appear to be

- (i) Information technology investments—which typically allow shared use of data across product lines;
- (ii) Brandname capital—particularly for a set of long-established financial institutions with a reputation for financial stability;
- (iii) The branch network—to allow cross-selling of financial products; and
- (iv) The human/organizational skills—such that experience of, say, the housing finance business could be used in, for example, selling real estate.

It was not possible to determine individual societies' past information technology investments. Their investments in brandname capital were proxied by *ADVERT*ising expenditure averaged over the two years prior to deregulation. This variable, together with those

<sup>6</sup> In part because until recently structural regulation so restricted the range of bank outputs and because of differences in the treatment of deposits as outputs or inputs—see Litan (1987, pp. 74–76).

representing the extent of the *BRANCH* network and the numbers of *HQSTAFF* were deflated by asset size—see table 1.

The resource-based theory also suggests that specific assets are a source of current competitive advantage which may be extended by expanding the output of existing products. In this case increasing existing output is an alternative to exploiting economies of scope. Accordingly, the *PROFIT*ability of the pre-deregulation societies was included as a control for the attraction of expanding the core business. It was recognised, however, that signing this variable was ambiguous since market and location factors could also influence the expected returns on new products.

It was anticipated that *SIZE* (total assets in £billion) would capture unobservable firm investments and hence exert a positive influence on the diversification decision. (The restrictions, under the new regulatory regime, on the *extent* of non-core asset holdings were expected to reinforce this, as smaller firms would be unlikely to be able to meet the fixed costs of entry in all markets). *ADVERT*ising, *BRANCH* network and *HQSTAFF* intensities were expected to represent specific assets which could be utilized more intensively with diversification and hence to carry positive coefficients. Finally, since the societies were financial mutuals and hence unable to issue equity, the *RESERVES* ratio (i.e. (total assets – all deposit and debt liabilities) / total assets) was included as a measure of

TABLE 1.—VARIABLE DEFINITIONS AND CHARACTERISTICS

Name	Definition	Mean (SD)	[Expected Effect on Entry Decision]
<i>SIZE</i>	Assets in £billion end 1986	2.34 (4.73)	[+]
<i>SIZESQ</i>	<i>SIZE</i> **2	27.80 (102.00)	[–]
<i>BRANCH</i>	Number of branches (end 1986) / <i>SIZE</i>	84.65 (38.80)	[+]
<i>ADVERT</i>	Advertising expenditure in £k (1985–1986 mean) / <i>SIZE</i>	734.5 (567.4)	[+]
<i>HQSTAFF</i>	HQ Employees (end 1986) / <i>SIZE</i>	234.7 (88.6)	[+]
<i>PROFIT</i>	Profits after tax in £ billion (1985–1987 mean) / assets in £ billion	.0086 (.003)	[–]
<i>RESERVES</i>	[Assets – Loan Liabilities (both end 1986 in £ billion) / Assets (end 1986 in £ billion)] × 100	5.00 (1.68)	[?]
<i>FIXED</i>	Binary variable for products with high initial fixed investments [Estate Agents, ATMs, Stockbroking, Offshore Facilities]		[–]
<i>REG</i>	Binary variable for products covered by polarization requirements of 1986 FSA or similar regulation [Investment Advice, Unit Trusts, Pension Plans, Stockbroking]		[–]
<i>DEMUTUAL</i>	Binary variable for societies indicating “active consideration” of demutualization in 1988–89.		[+]

Sources: Building Societies' Association Yearbooks, Tekron Database, Society Accounts, AR11 Files, UBS-Philips and Drew broker reports (various).

any financial constraint on expansion. Unfortunately, this variable could not be signed unambiguously since the prudential regulation of the sector has involved a minimum ratio which falls with total assets (Drake (1989) pp. 127–133). The new legislation also allowed societies to demutualize and become joint-stock banks under a more liberal regulatory regime. In the event only one society has done so, but a number initially expressed interest in this option. Accordingly, a binary variable *DEMUTUAL* was used to denote societies which indicated in brokers' reports in 1988–89 that they were at least "actively considering" demutualizing.

The composition of the product characteristics vector was limited to binary variables, as there were no available data on the degree of investment in particular markets. In addition to individual product dummies, a binary variable *FIXED* was used to distinguish those markets (see table 1) which industry sources indicated required a substantial initial fixed capital investment. Finally, it was noted that although deregulation opened up new markets, further restrictions were applied to the sale of some products. In particular, the 1986 Financial Services Act (FSA) required sellers of certain investment products to opt for either independent intermediary status, with a legal obligation to disclose commissions and to provide "best advice," or to become tied to a designated supplier. Similarly, the 1986 Building Societies Act retained limited restrictions on entry to stockbroking. A separate binary variable *REGulation* was defined to cover products affected by the controls described (see table 1) with the ceteris paribus expectation that regulation would discourage entry.

Since a high *FIXED* cost of entry was expected to inhibit diversification by smaller and/or less well-financed societies, *FIXED* was also entered multiplicatively with *SIZE* and *RESERVES* with the expectation of positive interaction effects.

## B. Results

The ordered probit model broadly confirmed prior expectations on the importance of firm-specific attributes in explaining subsequent diversification decisions. There was a strong non-linear *SIZE* effect which was consistent with the literature on manufacturing industries and also with the regulatory constraints on the permissible proportion of non-core assets. (Evaluating the *SIZE* and *SIZESQ* coefficients suggested that diversification intensity reached a maximum at an asset value of approximately £17 billion (1987 values)—a level exceeded by only four sample firms. This internal maximum probably reflects strategic aims of those just below the market leaders to achieve national status.) *BRANCH* intensity attracted a positive, significant coefficient. This was consistent

with our expectation that financial firms can exploit economies of scope by selling multiple products via the same branches. Similarly, *ADVERT* carried a significant positive coefficient—consistent with our hypothesized role for brandname capital in encouraging diversification.

*HQSTAFF* intensity was intended to capture the human capital assets. However, it emerged with a significant negative coefficient which was completely robust to specification changes. While it is possible that headquarters staff numbers fail to proxy for relevant human capital assets,<sup>7</sup> the result is consistent with a bureaucratic explanation: namely, that the more entrepreneurial mutual managers have a lower preference for staff. The significant negative coefficient on *RESERVES* did not support the view of a generally binding financial constraint, although, as noted earlier, this variable is affected by the prudential regulation of societies. However, entered interactively with *FIXED*—the latter representing products with high initial fixed costs—*RESERVES* yielded a significant positive coefficient. *PROFIT* attracted a negative sign but remained completely insignificant. Similarly, there was no apparent tendency for those societies intending to demutualize to show higher entry rates.

Among the product variables *FIXED* was significant with the expected negative sign. The significant negative coefficient on *REG* was consistent with the expected disincentive effect of the regulation provisions of the Financial Services Act.

A comparison of the relative magnitude of the partial effects [ $\delta \text{Prob}(y = j) / \delta x_i$ ] in an ordered probit requires separate effects for each of the  $j$  outcomes. These are shown for the principal significant variables in table 3 and suggest that *SIZE*, *RESERVES* and *BRANCH* are the dominant continuous variables, with a substantial binary impact from *FIXED*.

Re-estimating the results as a multinomial logit equation with three outcomes largely confirmed the ordered probit result. That is, all the firm-specific variables (although not all the product and interaction variables) carried the same signs in both entry mode cases—but with generally greater absolute magnitudes for the owned-entry case. This confirmed our preference for the view that the modes represented different ordinal levels of entry commitment. It was notable that whilst the pattern of significant variables in the owned-entry coefficient set—in table 2—closely matches that for the probit results, the joint venture /

<sup>7</sup> Although it was felt that HQ staff were more likely to do so than branch staff. Many societies make extensive use of part-time employees at branch levels. It was suggested that economies of scale could create a spurious relationship, i.e., lower staffing intensities proxy for larger size. However, the size-staffing intensity correlation (–0.30), although negative, was not strong.

affiliate set is largely insignificant. Since joint ventures may involve the provision of specific assets by either or both parties and our data relate strictly to the societies as sellers of financial products, this reduced predictability for the joint venture case is entirely consistent with the resource-based view.

## V. Conclusion

The resource-based (Penrose-Teece) view of the firm as a bundle of specific assets or capabilities predicts that diversification patterns will reflect attempts to utilize these attributes more intensively. This hypothe-

TABLE 2.—DETERMINANTS OF ENTRY RESULTS

Explanatory Variable	Model		
	Ordered Probit	Multinomial Logit	
		Fully Owned Entry	Joint Venture Entry
<i>SIZE</i>	0.1760 <sup>a</sup> (4.30)	0.4233 <sup>a</sup> (4.02)	0.0456 (0.48)
<i>SIZESQ</i>	-0.5370 <sup>a</sup> (3.32)	-0.0124 <sup>a</sup> (3.38)	0.0000 (0.01)
<i>BRANCH</i>	0.0039 <sup>a</sup> (2.02)	0.0112 <sup>a</sup> (2.19)	0.0061 (1.36)
<i>ADVERT</i>	0.0005 <sup>a</sup> (2.70)	0.0012 <sup>a</sup> (2.19)	0.0006 <sup>b</sup> (1.71)
<i>HQSTAFF</i>	-.0026 <sup>a</sup> (2.80)	-0.0058 <sup>a</sup> (2.50)	0.0070 <sup>a</sup> (3.43)
<i>PROFIT</i>	-12.988 (0.73)	-34.005 (0.79)	-20.37 (0.53)
<i>RESERVES</i>	-0.1521 <sup>a</sup> (2.64)	-0.2910 <sup>b</sup> (1.90)	-0.3492 <sup>a</sup> (2.35)
<i>DEMUTUAL</i>	-0.2825 (1.29)	-0.6318 (1.19)	-0.8002 (1.42)
<i>FIXED</i>	-1.3255 <sup>a</sup> (2.86)	-6.0154 <sup>a</sup> (4.50)	1.6924 (0.86)
<i>REG</i>	-0.3855 <sup>a</sup> (2.09)	-1.7326 <sup>a</sup> (2.86)	0.1740 (0.54)
<i>SIZE * FIXED</i>	0.0443 (1.54)	0.1728 <sup>a</sup> (2.11)	-0.0495 (0.70)
<i>RESERVES * FIXED</i>	0.1644 <sup>b</sup> (1.96)	0.4844 <sup>a</sup> (2.36)	-0.3363 (0.80)
CONSTANT	0.1367 (0.31)	1.9238 (1.61)	1.5655 (1.54)
THRESHOLD PARAMETER	0.8309 <sup>a</sup> (12.33)	—	—
+ PRODUCT DUMMIES			
CONVERGENT LLD	-489.45		-423.43
INITIAL LLD	-624.49		-624.49
<i>N</i>	611		611
% Correct Predictions	64.6		70.2

Note: *t*-statistics in parentheses

<sup>a</sup> Significant at or above the 5% level.

<sup>b</sup> Significant at or above the 10% level.

TABLE 3.—PARTIAL EFFECTS [ $\delta \text{Prob}(y = j) / \delta x_i$ ] IMPLIED BY ORDERED PROBIT COEFFICIENTS FOR PRINCIPAL SIGNIFICANT VARIABLES

Variable	Partial Effect <sup>a</sup>		
	$\delta P(0) / \delta x_i$	$\delta P(1) / \delta x_i$	$\delta P(2) / \delta x_i$
<i>SIZE</i>	-.0702	.0209	.0493
<i>BRANCH</i>	-.0015	.0005	.0011
<i>ADVERT</i>	-.0002	.0001	.0001
<i>HQ STAFF</i>	.0010	-.0003	-.0007
<i>RESERVES</i>	.0607	-.0181	-.0426
<i>FIXED</i>	.5288	-.1574	-.3714
<i>RESERVES * FIXED</i>	-.0656	.0195	.0461

<sup>a</sup> 0, 1, 2 = no entry, joint venture entry and wholly-owned entry, respectively.

sis has been examined in recent work on manufacturing firms but not until now in the service sector, as far as we are aware. This note has sought to use the particular opportunity created by the liberalization of structural regulation in UK financial services to examine new entry decisions by a sample of firms previously restricted to the same core business.

It has been seen that the results support the view that diversification is not an entirely random process (or a reflection of executive idiosyncrasies) but it does follow firm-specific and product-specific characteristics, in partial conformity with the Penrose-Teece view. The results also confirm the importance of firm size, as found in manufacturing industry studies. However, our findings also suggest that the retained features of the regulatory regime continue to influence diversification decisions. In particular it appears to be the case that those financial product markets which are more intensively regulated receive *ceteris paribus* fewer wholly owned new entrants.

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## GAMES THE STATES DON'T PLAY: WELFARE BENEFITS AND THE THEORY OF FISCAL FEDERALISM

Mark Shroder\*

*Abstract*—Fiscal federalism theory predicts that states will behave strategically in welfare programs because voter "demand" for welfare is sensitive to tax price, while the tax price itself changes because of welfare-induced migration. This paper tests these propositions on AFDC in the United States for a panel from 1982–1988, using new models for the determination of the reciprocity ratio (the tax price), and "composite neighbors." The data do not support any substantial tax

price elasticity of demand for welfare. Estimates of migration effects on tax price are found to be sensitive to specification.

### I. Introduction

Many economists believe that the U.S. welfare system is inherently unstable and socially inefficient because of gaming behavior among the states and interstate migration by welfare recipients. They feel that redistribution of income is a function of government that should be predominantly performed at the Federal level, rather than at the state level or lower.

The first author to make this argument seems to have been Stigler (1956). Two citations will illustrate the common view:

States can free-ride on the benefit payments of other states by the simple expedient of paying

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