Research Review

The Regulation of Advertising

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Introduction

That buyers and sellers make rational choices with adequate information is one of the sufficient conditions of efficient market performance In practice, consumers do not have as much access to information about products as do manufacturers Likewise, consumers typically have less technical expertise than sellers do to evaluate available information and less incentive to acquire information Even if all economic agents were well informed, private markets would in general produce too little information This is so because the public-good characteristics of information make it difficult for producers to cover the costs of dissemination of knowledge to those consumers who benefit from it For all these reasons, markets for consumer products may fail to produce efficient or equitable market solutions (*12*) [1]

Market failure generated by inadequate or misleading information is the principal economic argument for consumer protection legislation(*23*) In the food system, Government intervention intended to correct informational inadequacy takes the form of labeling rules, product standards of identity, inspection of processing plants, and advertising regulation (*14*) The proper role of advertising in the food system has been one of the most controversial issues for quite some time (see *4*, *19*, *28*) Even more rancorous is the debate over the contribution that advertising regulation makes to performance Nearly half of all U S advertising is for grocery products, yet researchers in agricultural economics have contributed relatively little to this debate (*2*)

The last decade saw a significant expansion of public policies directed toward advertising (*1*) But, recent shifts in public sentiment have led to a reevaluation of regulations introduced during the seventies At the same time, the courts are considering challenges to the legality of restraints on commercial advertising by trade associations This article surveys the laws, administrative procedures, and voluntary group practices that constrain the content of advertising in the United States Special attention is given to examples involving food or grocery products The concluding section offers suggestions for economic research on the regulation of advertising

Consumer Protection Regulations

Several Federal agencies have authority over various facets of advertising or sales promotion practices in the U S food system The most influential agency is the Federal Trade Commission (FTC) (*1*, *10*) Most States have laws similar to Federal statutes that are enforced by State attorneys general or consumer protection offices (*11*)

The judicial system regulates advertising through its power to enforce contracts under common law and to hear appeals from agency rulings In legal theory, any buyer may sue a seller under common law provisions if the buyer believes that an advertising claim is fraudulent (*7*) However, misstatements made by food advertisers could never be successfully brought into the courts by individuals because false advertising suits require proof of a significant monetary loss Sellers may sue other advertisers for disparagement of their products In both cases plaintiffs must generally prove fraudulent intent or "reckless disregard for the

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[1] Italicized numbers in parentheses refer to items in the References at the end of this article

truth "[2] The U S Postal Service monitors and prosecutes mail fraud

FTC Deceptiveness Enforcement

Section 5 of the 1914 FTC Act goes considerably beyond common law in its potential for placing constraints on advertising (*20, 29, 31*) This section declares "unfair or deceptive acts or practices" unlawful without spelling out in detail what is meant by these terms Over the last 40 years, case law has evolved standards of regulation that have permitted the FTC to issue cease-and-desist orders concerning false, deceptive, or misleading claims [3] The burden of proof is on the FTC to establish that an advertising claim has the "tendency or capacity to deceive " Though not legally required to do so, the FTC commonly provides evidence, often subpoenaed company surveys, that a "significant minority" of consumers were in fact misled by the advertisement (*1*) [4]

A second method of relief open to the FTC is the consent decree Consent decrees are agreements between the FTC and a company alleged to have deceived Without admitting guilt, the company agrees to avoid certain practices in the future Consent decrees have the advantage of providing a speedy alternative to litigation and of raising the penalities for future violations of the decree Unlike cease-and-desist orders, they are never reviewed by the courts

A third form of relief can be sought by the FTC when an advertisement has been found to be deceptive (*22*) In cases where deception is believed to be a widespread industry practice, the FTC has proposed and issued Trade Regulation Rules (TRRs) requiring affirmative disclosure of specific facts The first instance of this kind of remedy was a trade regulation rule regarding the advertising and labeling of cigarettes Proceedings regarding the rule began in January 1964, immediately after release of a Surgeon General's report warning of a causal connection between cigarette smoking and lung cancer The rule, issued in June 1964, required all cigarette ads and packages to carry the message "Cigarette smoking is dangerous to health and may cause death " (*6*) [5] Since 1970, the FTC has issued several more TRRs requiring affirmative disclosure [6]

Two other proposed rules requiring affirmative disclosure concern television advertising directed at children and food advertising claims in general [7] The children's advertising inquiry arose because of concerns that children are misled as to the long-term harm that can result from consumption of candy, sugared cereals, and the like (*33*) There are doubts about the ability of children to act as rational consumers with respect to any advertised product Following a lobbying effort by a coalition of food firms, the broadcasting industry, and associations of advertising agencies that reputedly cost between $15 and $30 million, the Congress in 1981 directed the FTC to cease work on a rule for children's ads (*13, 16*)

Finally, a fourth form of relief used by the FTC under the deceptiveness doctrine is called "corrective" advertising (*5*) Corrective advertising is used in cases where it is believed that only future advertising messages can correct the residual effects

[2] An individual consumer might be successful in an action where food safety is involved, because this is a question of product liability rather than false advertising Note that this article does not address the rights of advertisers to "commercial free speech" under the first amendment to the Constitution

[3] The courts have consistently held that no private actions by consumers or consumer groups may be pursued under the FTC Act FTC enforcement is exclusive However, a few States permit private actions under their "little FTC acts " Very few FTC orders have been overturned on appeal to the Federal courts For a brief overview of regulation abroad, see (*35*)

[4] Examples of ads ruled deceptive by the FTC are a yogurt advertisement that said "Dannon is known as nature's perfect food that science made better", a magazine ad that showed soup—thickened with marbles—pouring out of a "chunky" Campbell soup can, and a Profile bread ad that claimed lower calories per slice without disclosing that this was because its slices were much thinner than most breads

[5] The Cigarette Labelling and Advertising Act of 1965 substituted the current, milder warning for 5 more years Moreover, the FTC was required to wait until expiration of this law before enacting any other cigarette advertising rules

[6] Other examples of affirmative disclosure rules in effect include light bulb durability, octane ratings for gasoline, the "R value" of home insulation products, and energy-efficiency labeling for home appliances

[7] Work on a rule on voluntary nutrition claims in advertising began at the FTC in 1974 (*8*) The proposed TRR seeks to define or circumscribe the use of the terms "natural," "nutritious," and others, it would require that energy claims be accompanied by specific calorie ratings and that foods that claimed to help prevent heart disease reveal cholesterol levels In April 1982, the newly appointed director of the FTC's Bureau of Consumer Protection recommended that the Commission reject the proposed rule (*18*) However, in late 1982 the Commission voted provisionally to approve promulgation of the rule

of a long history of false advertising The most famous case involved a Listerine mouthwash advertisement which claimed that because it killed germs it also prevented colds The FTC required subsequent Listerine ads to tell potential users that it is ineffective in preventing disease This kind of relief, if it dissuades consumers from purchasing the item, is much more costly to the advertisers than the consent-decree approach

The only legal defense for an admittedly deceptive advertisement is puffery (*24*) Puffs are advertising claims that are so vague, subjective, or exaggerated that reasonable buyers cannot find them credible or persuasive (for example, "Milwaukee's finest beer") In addition to qualitative statements, some writers consider deceptive comparative price claims—such as "warehouse prices," "lowest price ever," or "free"" a form of puffery (*26*) Preston (*24*) argues that even a trade name ("Wonder Bread") may be a puff Under current interpretation of the law, all these statements may be literally "false," but are not prosecuted because they involve matters of individual taste or because it is difficult to establish harm for a substantial minority of rational consumers Legal reasoning assumes that both buyers and sellers anticipate sellers' hype about their products That is, obvious exaggeration in advertising is legal partly because advertisers claim (and the law assumes) it is ineffectual

FTC Unfairness Approach

The "unfairness doctrine" provides an additional and distinct set of criteria for FTC actions under Section 5 (*21, 22*) Under this legal theory, FTC intervention is justified by practices that offend public policy or public standards of decency, that affect vulnerable consumer groups, or that involve disparity in access to information between sellers and buyers It is possible that ads based on "socio-psychological representations" (for example, "Coke is it!") that are not strictly deceptive might be subject to regulation under this approach

The unfairness doctrine was the basis of the "advertising substantiation" form of relief (*30*) Unlike its remedies based on the deceptive advertising theory, the FTC does not have to demonstrate that a claim is false or misleading Rather, the agency must only show that an unfair practice occurred in connection with an advertising claim Unsubstantiated advertising cases, beginning with *Pfizer vs FTC* in 1972, only require that the FTC prove that the advertiser did not have documentation or other evidence as to the truth of a claim regarding the quality, performance, efficiency, safety, or price of its product prior to the time the adverising occurred Even if a claim is true, an advertisement is considered unsubstantiated if the advertiser has no "reasonable basis" for the claim The type of substantiation varies according to the type of claim For example, a statement that a food was kosher could be supported by managers' affadavits or company production records Claiming that a food was the "lowest in calories," on the other hand, might require evidence of prior literature searches, scientific tests, or a consultant's report Any plausible interpretation of the claim understood by a significant minority of potential consumers is regarded as a separate claim Relief in these cases has typically consisted of cease-and-desist orders requiring specific substantiation for similar future claims (see (*16*)) Because most of the evidence in advertising substantiation cases is subpoenaed company records, this approach shifts much of the cost of assembling evidence to the advertisers The FTC still bears the "burden of proof" in all legal proceedings

Other Related Public Regulation

At least five other forms of Government intervention aim at correcting market failures arising from advertising These are regulations covering monopolization, price discrimination, trademarks, grades and labels, and media broadcasting None of these regulatory activities is considered consumer protection, but all are based in part on the same economic rationale

Section 5 of the FTC Act has been used together with other antitrust statutes to prosecute monopolization supported by anticompetitive advertising [8] Two outstanding recent examples are the FTC's cases against the breakfast cereal makers

[8] The first case to use the argument that advertising could have anticompetitive effects was *FTC vs Proctor and Gamble* (1967), which was brought under Section 7 Clayton Act which refers to mergers

and against Borden ReaLemon (*17*) In the cereals case, the FTC's counsel argued that excessive product differentiation was the principal cause of blockaded entry in the industry, that is, intense advertising and sales promotion together with preemptive new product introductions were said to be the major business strategies that were monopolizing the industry Restructuring of the industry and compulsory trademark licensing were the proposed remedies, however, the administrative law judge hearing the case doubted the validity of the "shared monopoly" theory, so he decided in favor of the cereal companies in September 1981 [9] In the ReaLemon case, the commissioners decided that the proposed remedy was too severe and merely directed Borden to cease its predatory pricing [10] Thus, the FTC has argued that advertising is the root of monopoly in a few recent cases involving food products, but it either has lost the case or has failed to obtain the kinds of novel remedies thought to be necessary

Another statute that serves as the basis for the FTC's and the Justice Antitrust Division's actions on advertising is the Robinson-Patman Act of 1936 (*9*) About a fifth of FTC actions under this law have dealt with advertising "allowances" given by manufacturers to retailers ostensibly to compensate retailers for advertising expenses related to the manufacturer's product The FTC was able to establish that in most cases the allowances exceeded actual retailer advertising costs and were thereby a form of discriminatory price cutting However, the FTC has initiated very few such cases in the last 15 years In fact, September 1982 congressional testimony by antitrust officials indicates that few Robinson-Patman cases of any kind will be brought in the foreseeable future

Advertising effectiveness presupposes the existence of a system of legal protection for trademarks and trade names (*36*) Trademarks are registered by the U S Patent Office Like patents, trademarks may constitute legal barriers to entry but, unlike patents, they are indefinitely renewable Historically, trademarks have been the basis of resale price maintenance, market segmentation, price discrimination, and cartels Trademarks can be combined with patents to create sustained price premiums, "Formica" and "Xeroxing" are two examples often given in the literature "Trademark banking," the practice of one company's registering a large number of desirable names for a particular product, is a form of unfair competition if it has the effect of excluding competitors Potential entrants thus prevented from entering can sue established firms that have "banked" trademarks they do not use

Trademark infringement suits can be brought under State statutes or under the Lanham Act of 1946 at the Federal level In addition, the FTC may bring cases to establish that a trademark has evolved into a generic term, "aspirin," for example, was at one time a registered trademark in the United States (In Europe it is still a trademark of the Bayer company) Private suits can also be brought The patent for shredded wheat expired in 1912, but it was not until 1938, after 25 years of litigation that the courts decided (*Kellogg Co vs National Biscuit Co*) that the name was generic [11]

Several Federal agencies regulate grading, standards of identity, or labeling of products (*3*) The U S Department of Agriculture is responsible for those regulations covering processed meat, poultry, and egg products as well as many unprocessed agricultural commodities The Food and Drug Administration (FDA) has authority over most other processed food products and the Bureau of Alcohol, Firearms, and Tobacco (BAFT) over alcoholic beverages Government grades are used primarily by commercial buyers and sellers rather than by consumers, but where grading exists it is associated with foods that have low levels of physical product differentiation Similarly, many foods (ice cream, mayonnaise, and peanut butter) have standards of identity that set minimum ingredient standards Foods that do not meet the standards must use

[9] The Commission refused to hear an appeal of the case Because of intense lobbying by the industry, the Congress had directed the FTC to stop spending funds on the case as of October 1981

[10] In the Borden ReaLemon case (1976), the Government argued that the price premiums commanded by the brand were due to excessive advertising and the dominant market position of the brand Competitors were disadvantaged by predatory geographic price discrimination The remedy sought by the complaint counsel and ordered by the administrative law judge was compulsory licensing of the ReaLemon brand

[11] A more recent case involves the unsuccessful attempt of Phillip Morris' Miller Brewing Co to argue that its "Lite" trademark rights gave it exclusive use of the term "light" to describe beers

different generic designations (for example, salad dressing instead of mayonnaise) or be labeled "imitation " Federal labeling regulations insure the accuracy of open dating, nutritional claims, and ingredient lists Some labeling rules may provide guides to quality for consumers For example, alcohol levels in wine or spirts that the BAFT requires on labels may aid consumer choice, however, until recently, the BAFT did not permit comparative advertising of alcoholic beverages [12] In sum, some Federal labeling or grading regulations have reduced the scope for advertising or other forms of product differentiation and have aided consumers in making price-quality comparisons [13]

Finally, some Federal regulations of advertising affect the broadcast media (*37*) In 1967, the Federal Communications Commission (FCC) issued a rule governing access to and fairness in commercial advertising This "fairness doctrine," previously applied only to political issues, states that counter-advertising time should be made freely available on important public policy issues Under that rule, the FCC permitted counter-advertising of cigarette advertisements during 1968-70 (in the ratio of one to three) because it considered the debate on the health effects of smoking a major national controversy Since 1971, the FCC has monitored the ban on radio and TV advertising of cigarettes (*6*) In 1974, the FCC repudicated its application of the fairness doctrine to commercial advertising, and its change in policy was upheld in a 1975 court case If the health and safety of certain foods is ever deemed an important enough public policy issue, the cigarette episode will likely be cited as an important precedent

Regulation by Private Groups

Advertising is voluntarily restricted by some industry groups (*34*) Probably the most important instance of self-regulation is an ethical statement of the American Association of Advertising Agencies entitled "Standard of Practice " This code, which has been endorsed by most of the leading advertising industry associations, restricts its members from producing advertising copy containing

- False or misleading statements or exaggerations,
- Testimonials that do not reflect the "real choice of a competent witness,"
- Misleading price claims,
- Unfair or disparaging comparisons,
- Insufficiently supported claims or claims that "distort the true meaning or practicable application of statements made by professional or scientific authority," and
- Statements, suggestions, or pictures offensive to public decency

It is on the basis of this and other codes that the National Association of Broadcasters (NAB) has banned radio and TV advertisements of distilled spirits, although advertising of beer and wines is permitted Furthermore, the models used in alcholic beverage ads must not appear to be below the legal drinking age and must not be currently active sports figures The NAB also has certain restrictions on the types and content of candy and breakfast cereal advertisements aimed at children These and other steps were taken largely to avoid more formal Government regulation of alcoholic beverage advertising, although convictions about corporate social accountability cannot be discounted [14]

Several State and national advertising groups have programs that arbitrate disparagement or fraud complaints among their members, other organizations attempt to mediate complaints from the public about specific advertising campaigns The leading national body is the National Advertising

[12] The current administration is considering the repeal of regulations governing standards of identity The BAFT was nearly dissolved in 1982 because of the lobbying efforts of the National Rifle Association, among others, and this would have diminished alcoholic beverage labeling regulation

[13] The Fair Packaging Act of 1966, enforced by the Bureau of Standards, has as its goal to reduce the number of package sizes used in an industry so as to facilitiate consumer price comparisons The act depends on voluntary industry agreements One agreement covered breakfast cereal boxes The advent of unit pricing in many grocery stores reduced the need for this legislation

[14] In March 1982, the NAB suspended enforcement of its TV and radio codes in response to a U S District Court ruling that the portion of the code restricting multiple product advertising in commercials of less than 60 seconds violates the antitrust laws (see *Broadcasting Magazine*, Mar 15, 1982, p 45) However, the three major TV networks continue to censor proposed advertisements *The Wall Street Journal* reported (Sept 30, 1982) that the networks' 29 censors evaluate about 50,000 different ads per year, rejecting up to 40 percent of the proposed commercials

Review Board, established in 1970 as part of the Council of Better Business Bureaus [15]

Consumer groups can affect the impact of advertising They have been effective in tracking and commenting on advertising regulations proposed by Government agencies Groups like the Consumers Union publish ratings of foods and other consumer products that sometimes call into question claims of superior quality made by leading manufacturers Consumers can also form class-action suits where they can prove sustantial economic injury has occurred These suits have not been widely used as yet for misleading food advertising, as proof of significant harm from food advertising is difficult Yet, the size of the finds often awarded might make this approach effective (*36*)

The Current Debate

The FTC and similar State agencies win a high proportion of the deceptive or unsubstantiated advertising cases they bring—over 90 percent by one estimate (*36*) There is wide public and official support for the principle of protecting consumers from deceptive advertising Business and consumer groups alike recognize that fraudulent claims can have serious adverse consequences There is less agreement as to whether regulation can deal with unfairness arising from specific advertising practices Differences of opinion also exist over the propriety of specific actions and the efficacy of some remedies

Critics of FTC activism assert that merely misleading advertising (no fraudulent intent) should be left unregulated because the market will encourage counter-advertising by rival sellers, that affirmative disclosures themselves are sometimes misleading, that regulation reduces the volume of desirable advertising and new products introduced, and that consumers are too rational and well informed to need protection

During 1980-82, advertising regulation has come under especially sharp criticism The new chairman of the FTC on his own initiative has proposed severely limiting the number and types of cases initiated (*15*) He would limit challenges to claims that are strictly false and not merely "unfair" or misleading by passing laws that limit the meaning of the terms Claims about products that are cheap, frequently purchased, and "easily evaluated" by consumers would also not be challenged Most grocery items fall into this category Under his proposals, the standard of proof would be raised to require actual (material or monetary) substantial harm to a reasonable consumer Psychic harm or possible injury to "vulnerable groups" would be largely ignored [16] Thus, under these proposals, the advertising substantiation program would be ended, no cases would be brought challenging opinions expressed in advertising (for example, "tastes like cola"), and mere omission of relevant facts would not be the basis of a challenge

Supporters of strong Federal regulation of advertising disagree with the proposed changes (*32*) Some of their objections rest upon questions of legal procedure A statutory definition of unfairness or deception would replace the traditional method of evolving a set of standards through case law In fact, such an approach would probably hinder the FTC in acting in exceptional circumstances and would probably reduce the scope of judicial review of FTC decisions Other objections are based on the suggested criteria for bringing unfairness cases Several types of vulnerable consumers would no longer be protected, bereaved purchasers of funeral services are one example The need for establishing that the benefits of restricting an ad outweigh the costs may be onerous, particularly if the costs are mainly psychic Calculating the harm done to consumers misled by a false claim that a food was kosher or vegetarian might tax the ability of the best social scientist Finally, it is debatable whether the "reasonable consumer" standard is appropriate If consumers are indeed swayed by emotive or subconscious appeals in advertising, then consumers almost by

[15] A recent example of how self-regulation works is a 1980 Minnesota TV advertisement for Tony's frozen pizza The ad in question claimed that all rival frozen pizzas were topped with imitation cheese " made with casein, the main ingredient in some glues " Because it was so effective, the ad won a prize from a local advertising association However, rival frozen pizza manufacturers complained that the message was misleading The State's Better Business Bureau was instrumental in stopping the advertisement on the grounds that casein occurs naturally in all dairy products and, therefore, was found in the "real cheese" on Tony's pizzas as well

[16] The proposed redefinition of unfairness would extend to vulnerable groups only if it could be proved that the advertiser intended to mislead a potential consumer Proof of intent is often difficult to obtain

definition never make rational choices There is no legal concensus as to what constitutes a reasonable response to advertising The summary judgment of one legal expert is that "A 'free-fire zone' for deceptive advertising would be the inevitable result of adopting Chairman Miller's proposal" (*32*, p 11) [17]

Even the more ardent supporters of Federal regulation of advertising recognize the complexity of the problem of reducing the harm to buyers while retaining the competitive benefits of advertising Most of their reservations concern the effectiveness of enforcement, particularly consent decrees that fail as strong deterrents They contend that correction typically occurs long after the harm is inflicted, with little attention given to followup inspections, and that because only advertisers are prosecuted, there is no deterrent effect on the advertising media themselves Some FTC supporters question the rationality of the agency's diversion of legal resources toward consumer protection and away from more traditional antitrust enforcement Others have argued for a significant expansion of the definition of unfair or deceptive practices which the FTC could use in setting its agenda (*25*)

Wilcox and Shepherd (*36*) judge that most observers would probably agree that advertising regulation has raised the level of honesty in national advertising and that the FTC serves as a valuable safety valve for consumers—a sort of national complaint department

[17] Both sides seem to agree that the Listerine case is one that would be brought under either set of standards That is, reasonable consumers wasted a lot of money buying Listerine because they wanted to prevent viral infections However, the Fresh Horizons bread case is one on which the two sides differ In this case, the claim was made that the bread contained five times as much fiber as regular breads The FTC challenged ITT Continental Baking because it failed to reveal that the fiber in their bread was wood pulp The Commission decided that omission of this information misled consumers about why the bread was allegedly superior Under the new proposals, a case like Fresh Horizons would not be brought in the first place, even if it were, the FTC would be required to present evidence that wood pulp fiber is nutritionally inferior to grain fiber A second case about which the two sides disagree is the Kroger Price Patrol case The critics of current FTC standards argue that the ads were informative about prices and that Kroger did not specifically claim scientific validity The FTC's defenders counter that there was evidence that Kroger actually had higher overall prices than its rivals (contrary to Kroger's claims) and actual harm was done both to Kroger's rivals through lost sales and to consumers who switched their grocery shopping to Kroger

Conclusions for Research

Economists have developed and tested numerous models that measure the influence of advertising amounts on market structure and performance (*2*) Moreover, economic analyses have contributed significantly to the design of public policies regarding monopolization, price discrimination, trademarks, grading, and other areas at least tangentially related to advertising regulation (*27*) By contrast, there is a paucity of economic analyses of consumer protection regulations Although a modest beginning has been made (see papers in *4*), the major difficulty probably lies in a problem common to regulatory assessment—the measurement of benefits It is noteworthy that the few empirical studies cited by those who favor deregulation deal almost exclusively with price advertising by retailers Far more relevant, but difficult, for policy information would be analyses of the qualitative content of advertising by manufacturers

The analytical difficulties do not seem insuperable For example, it would be possible to measure the price impacts of various advertising regulations cross-sectionally across jurisdictions with different regulations Alternatively, ample records may exist from hearings on advertising-deception cases to measure the extent of consumer injury due to changes in purchasing patterns or the extent of competitive gains to participating advertisers The case-study approach could be used to estimate the potential benefits from actions based solely on the deceptiveness theory as compared with actions incorporating the unfairness doctrine

Several temporal studies might be feasible research topics For example, one might compare the long-run effects on market shares or prices of the different forms of relief employed by public agencies (consent decrees, case-and-desist orders, TRRs, and so forth) A number of analyses have examined the influence of the cigarette advertising ban, the saccharine warning label, and other advertising regulations on sales or advertising conduct Should proposed reductions in specific advertising regulations take place, the change may well offer the kind of rare social experiment needed for rigorous hypothesis testing It would be interesting to measure the response of private markets for information should FTC regulation cease

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Rank and Salary of Federally Employed Agricultural Economists

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In this age of restricted budgets and reduced hiring, agricultural economists need to understand the workings of the market in which they act as the commodity This is particularly valuable if individuals can relate personal and professional characteristics to employment and salary potential

Recent investigations of the agricultural economics labor market have focused on the impact of sex, race, and ethnicity on employment and salary opportunities Although these issues are important, the studies exploring them are dominated by data from and analysis of the academic sector They cannot be used to explore these issues in the Federal sector adequately or to address factors unique to Federal employment

This article reviews recent findings of other researchers as background on current issues It then gives the results of a survey of a sample of federally employed agricultural economists drawn from ERS, and presents applies, and discusses the implications of a model which explains salary variation in that sample

Background

Lundeen and Clauson (*4*), Lee (*2*), Redman (*5*), and Lane (*1*) have reported on the conduct, results, and analysis of a survey to determine the relative opportunities for and status of women in agricultural economics [1] Lee's multiple regression analysis of factors determining agricultural economists' salaries focuses primarily on a comparison of males and females in the profession, but also considers other determinants of salary In Lee's model, before-tax 1980 salary is dependent on nine independent variables educational background (whether or not Ph D was received), years since last degree was received, months of tenure in present job, number of professional publications, number of books published, whether or not the individual's position is primarily administrative, number of times unemployed or on extended leave for 6 months or more, percentage of income derived from consulting, and sex of respondent Lee found this model explained 69 5 percent of variation in salary for a sample of 145 male and female American Agricultural Economics Association (AAEA) members responding to the survey It performed better, explaining 76 8 percent of variation in salary, for a more homogeneous subsample of 104 respondents with academic employers In the analysis of academic salaries, the coefficients of books published, career interruptions, and consulting proved to be independently insignificant The estimated model showed a significant and negative coefficient associated with being female, and it implies that, all else constant, women receive approximately $3,000 less per year than do men in academia All other significant coefficients are positive and range from $114 per annual professional publication to $12,446 associated with possession of a Ph D degree

Working with data summarized from the 1981 AAEA Employment Registry, Strauss and Tarr (*7*) developed single-equation regression models to relate years of experience, highest degree received, sex, and race/ethnicity to annual salary of agricultural economists employed by each of the following educational institutions, the Federal Government, State and local governments, the private sector, and miscellaneous and international organizations They find academicians have lower salaries than do those employed in the other sectors Possession of a Ph D has a significant positive effect on salary in all sectors, but the strength of its contribution is far greater in State and local government and education institutions than in Federal Government or the private sector Strauss and Tarr find women earn significantly lower salaries in educational institutions and the private sector, but do not find significant differences attributable to sex in Federal or State and local government sectors With regard to race/ethnicity, they find no evidence that black agricultural economists are disadvantaged in any sec-

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[1] Italicized numbers in parentheses refer to items in the References at the end of this article

tor other than State and local government But, agricultural economists who indicate they are of Hispanic origin had significantly lower salaries than their non-Hispanic counterparts in academia, and Asian agricultural economists receive significantly lower salaries in all sectors except the Federal Government

Strauss and Tarr estimated a three-equation multinomial logit model to explain rank and salary as functions of degree quality, experience, sex, and race/ethnicity for 244 academic agricultural economists Their results suggest that, in spite of observed salary differences, when one accounts for degree quality, sex and race/ethnicity do not significantly affect academic rank or academicians' salary

Neither Lee's nor Strauss and Tarr's model addresses the possible impact of individuals' primary professional specialty on relative rank and salary However, the results of the "Survey on the Opportunities for and Status of Women in Agricultural Economics," as reported by Redman (*5*), suggest men and women have made some significantly different choices with respect to their area of specialization within agricultural economics Lee (*3*) has since found that, according to the way individuals classify themselves in the 1981 AAEA emploment registry, more than 35 percent of the specialties listed by men are in the fields of farm management/production, agricultural marketing, and finance By contrast, only 17 percent of women listed these specialties, and a substantially greater proportion of women than men classify themselves as specialists in the areas of community and human resources, consumer economics, and general economics

Recent findings by Stanton and Farrell (*6*) regarding research priorities suggest that the choice of specialty may affect one's rank and salary and partially explain the residual salary differential observed by Lee Stanton and Farrell surveyed agricultural economics department chairmen and administrators to determine their judgments as to the most important areas toward which work in agricultural economics should be directed A total of 39 percent of those surveyed indicated commercial agricultural production and marketing as priority research areas Consumer, welfare, community, and human resource economics were not singled out by program administrators as being among the most important issues Thus, it is apparent a larger portion of men than women are active in the specialties that are more popular with research program administrators This finding could have strong implications regarding the mean salaries observed for men and women

Another variable that can certainly affect professionals' salaries is their observed productivity Of special interest to many agricultural economists in Government are the possible tradeoffs among staff work, the publication of economic information, and publication of research in recognized journals Strauss and Tarr were unable to include measures of productivity in their model because full publication records are not reported in the AAEA registry Lee's publication variable is described by data resulting from a survey question asking, "How many publications have you had in the last 5 years related to your field of specialty?" Respondents' reports of their publication record lumped refereed journal articles, experiment station bulletins, extension publications, working papers, and all other publications one might broadly classify as "professional" into a single category, there was no way to separate or distinguish among various classes of publication Nevertheless, decisions regarding hiring, tenure, promotion, and merit-based salary increases can be strongly influenced by the distribution of an individual's publications among different specific professional outlets Accounting for this reality by disaggregating the publication variable into a set of separate variables could greatly influence the results obtained by models of salary determination for agricultural economists

Current and potential Federal employees may be concerned with additional factors that may affect one's rank and salary How does making the choice between research and administrative career paths in Government affect earning potential? Is one likely to make more money working in an Agency's headquarters than in a field location? Does the agency, division, branch, or other work unit within which an individual works influence promotion possibilities and salary? These questions are not addressed by recent studies of the agricultural economics labor market

Federal Employment of Agricultural Economists

In 1981, approximately 18 percent of all agricultural economists listed in the AAEA Registry were employed by the Federal Government The majority of these individuals (72 percent) worked for USDA (7)

USDA's Economic Research Service (ERS) is the largest single Federal employer of agricultural economists It was chosen as a case study agency for examination of factors affecting Federal agricultural economists' rank and salary As of January 1, 1982, ERS employed 526 individuals in its agricultural economist job series Females comprised 16 percent of that work force, over twice the proportion indicated by AAEA membership lists for the profession overall

Survey of ERS Agricultural Economists

In February 1982, a survey questionnaire was mailed to a sample of ERS agricultural economists to collect data for a multiple-regression analysis of factors affecting their salaries The questionnaire covered the following areas current employment status and employment history with ERS, general educational characteristics, recent (last 5 years) publication record, sex, and perceptions of professional position in relation to members of the opposite sex As 26 percent of ERS agricultural economists work outside the Washington, D C metropolitan area, current geographic location was collected as an employment variable In an attempt to overcome ambiguity with respect to what constitutes a professional publication, respondents were asked to indicate the number of publications in each of nine specified categories they had authored in the last 5 years Included as separate, explicity defined categories of publications were the following refereed journal articles, published research report series, including experiment station bulletins, Situation and Outlook reports, ERS Staff Reports, popular articles, book chapters, and books

The questionnaire was sent to each of the 82 ERS female employees classed as agricultural economists and to a sample of male employees in the same job series The male sample was selected in two ways First, from an alphabetic listing of ERS agricultural economists, their sex, and a salary indicator (GS-grade and step levels), the name of the first male on the list who followed the name of each female and who possessed a GS-level within one step of the female's level, was placed in the sample Lundeen and Clauson also used a similar matched-sampling procedure In the ERS study, it yielded 61 names A separate, random choice of males yielded 135 names, 18 of which overlapped with the matched sample A combination of the two sets gave a total survey sample of 178 men

Survey Response and Summary

The total response rate for the sample of 260 employees surveyed was 66 percent, which was evenly distributed among male and female respondents The respondent sample represented roughly a third of all ERS agricultural economists

Table 1 shows the characteristics of the sample population With the exception of respondents' sex, the distribution of responses among professional employment variables is typical of that for the Agency overall Table 2 shows respondents' salaries for each of various sample groups Neither the total sample mean salary nor the mean salaries for men and women differs significantly from those reported by the Agency for its GS-110 series (the economists' professional job series) as of the start of 1982 For these reasons the sample can be regarded as representative of the total population

One can make a number of observations from examination of tables 3-5, and I encourage readers to study these according to their own special interests Here I review only a few differences in respondent charactersitics that may affect the salary differences shown in table 2 The average tenure with ERS, years since highest degree, proportion of respondents with a Ph D , and percentage of responsdents with management or administrative responsibility are greater for NRED than for the other divisions These factors may explain the finding that the average NRED respondent's salary is also highest among divisions By contrast, EDD and IED respondents have received their highest degrees and been employed with ERS for shorter periods of time, these factors may explain the relatively lower mean salaries for those subsamples The typical individual located in the field is likely

Table 1—Selected characteristics of ERS survey respondents

Characteristic	Proportion of respondents
	Percent
Duty station	
Washington based	70
Field staff	30
Sex	
Male	68
Female	32
ERS division	
National Economics (NED)	39
International Economics (IED)	25
Natural Resource Economics (NRED)	26
Economic Development (EDD)	10
Education (highest degree)	
B S or M S , economics or agricultural economics	50
B S or M S , other	10
Ph D , economics or agricultural economics	38
Ph D , other	2
Job responsibility	
Primarily research	84
Primarily management/ administration	16
GS level	
GS 5-7	6
GS 9-11	27
GS 12	26
GS 13	25
GS 14	11
GS 15	5
Work week	
Full-time	95
Part-time	5

Table 2—Mean salary of survey respondents, by duty station, sex, ERS division, and job responsibility

Sample group	Mean annual salary[1]
	Dollars
Duty Station	
Washington based	31,484
Field staff	35,733
Sex	
Male	35,928
Female	25,999
ERS division	
National Economics	34,534
International Economics	29,530
Natural Resource Economics	35,127
Economic Development	28,331
Job responsibility	
Primarily research	30,923
Primary management/ administration	43,914
Total sample	32,751

[1] Salary based on respondents' grade and step levels as reported on completed questionnaire

to have more experience and a higher degree than a Washington-based employee, thus earning a greater salary Finally, we see that the majority of female employees have been with ERS for less time and, on the average, the female employees do not possess the same level of educational training as does the male subsample

The measure of perception of sex disadvantage is determined by yes/no responses to the survey question "Do you think you are paid less, have a lower job level, or fewer career advancement opportunities than you would if you were of the opposite sex?" The proportion of positive responses to this question does not differ significantly between field and Washington-based staff, and differs slightly among divisions The largest difference in perception occurs between male and female employees more women than men perceive sex discrimination

Analysis of Factors Affecting ERS Agricultural Economists' Salaries

A model was estimated from the survey data to determine the degree to which various characteristics affect federally employed agricultural economists' salaries and to provide a basis for testing the accuracy of perceptions regarding the impact of these factors on salary Accordingly, the dependent variable in the model is the before-tax, annual, fiscal year 1982 salary indicated by survey respon-

Table 3—Selected characteristics of survey respondents, by ERS division

Characteristic	Unit	Division[1]			
		NED (N = 68)	IED (N = 44)	NRED (N = 45)	EDD (N = 18)
Respondents located in field	Percent	22	9	64	28
Female respondents	do	28	41	20	56
Respondents with Ph D	do	40	30	47	44
Respondents primarily managers/administrators	do	15	14	20	11
Respondents receiving highest degree while in ERS	do	23	23	33	44
Average tenure in ERS	Years	9 7	6 2	12 3	5 1
Average time since highest degree	do	10 9	7 0	11 3	5 4
Average time between promotions	do	3 8	2 8	3 9	2 0
Average total publications per year (all types)	Number	4 1	4 3	2 6	3 3
Respondents perceiving sex disadvantage	Percent	25	32	36	33

[1] NED is the National Economics Division, IED is the International Economics Division, NED is the Natural Resource Economics Division, and EDD is the Economic Development Division These four divisions employ the vast majority of economists in ERS No survey responses were received from the Data Services Center Two responses received from individuals employed by the Administrator's Office (one an administrator, one a nonadministrator) were classified as NED employees for the purpose of this tabulation

dents' GS-grade and step levels Independent variables tested as possible determinants of salary were

1 Educational background—with Ph D = 1, otherwise = 0,

2 Experience—(a) months since highest degree was received, (b) tenure (months) with ERS,

3 Administrative duties—administrator = 1, otherwise = 0,

4 Geographic location—stationed in Washington, D C = 1, all field locations = 0,

5 Research productivity—(a) number of refereed journal articles published per year over last 5 years (or, if less than 5 years, annual average since receiving highest degree), (b) sum of all other professional papers and reports per year over last 5 years,

6 Sex—female = 1, male = 0,

7 Career interruptions—number of times unemployed or on extended leave for 6 or more consecutive months,

8 Area of specialization indicated by ERS division in which individual is employed—National Economics Division = 1, all other divisions = 0

The geographic location variable was included to test a popular impression that, all else equal, Washington, D C -based personnel receive higher pay The possible contribution to salary of subject area (NED work, as opposed to that in NRED, IED, or

Table 4—Selected characteristics of survey respondents, by duty station

Characteristic	Unit	Washington based (N = 122)	Field staff (N = 53)
Female respondents	Percent	38	19
Respondents primarily managers/ administrators	do	16	15
Respondents receiving highest degree while in ERS	do	24	38
Average tenure in ERS	Years	7 6	12 2
Average time since highest degree	do	8 8	11 0
Average time between promotions	do	3 0	4 3
Average publications per year (all types)	Number	3 9	2 9
Respondents perceiving sex disadvantage	Percent	31	28

Table 5—Selected characteristics of survey respondents, by sex

Characteristic	Unit	Male (N = 119)	Female (N = 56)
Respondents with Ph D	Percent	48	21
Respondents primarily managers/ administrators	do	18	11
Respondents receiving highest degree while in ERS	do	32	20
Tenure in ERS	Years	11 5	3 8
Average time since highest degree	do	11 8	4 5
Average time between promotions	do	4 2	1 6
Average publications/ year (all types)	Number	3 8	3 3
Respondents perceiving sex disadvantage	Percent	26	39

EDD) was tested because NED's objectives correspond more closely to the categories of issues reported by Stanton and Farrell perceived to be highest priority areas of research

Regression results are shown in table 6 The coefficients of variables describing geographic location and career interruption proved highly insignificant [2] The coefficient measuring journal publication record also proved insignificant However, the coefficient describing publications exclusive of journal articles indicates a positive, significant contribution to annual salary of total research output [3] Possession of a Ph D , months since receiving highest degree, length of tenure with ERS, employment within NED, and assignment of administrative duties all prove to be strong, positive, significant contributors to one's salary The negative coefficient associated with the sex variable is insignificant

It should be noted that the analysis and the results reported above apply only to ERS economists in grades 9-15 Although 10 observations from survey response by agricultural economists in grades 5-7 were available, these were not included in the model

Interpretation and Discussion

The model's results suggest the salary received by federally employed agricultural economists is a function of experience, education, subject matter responsibility, and productivity, but is not affected by individuals' sex or duty station location Individuals who have accepted managerial or admin-

[2] We ran a backwards, stepwise regression by deleting variables for which coefficients were found to be insignificant, in order of degree of insignificance At no stage of the stepwise deletion of the four insignificant variables did the level of significance of remaining variables' coefficients change by as much as 1 percent Thus, the variables may correctly be assumed independent of one another, and the coefficients describing the effects of location, career interruption, journal publication, and sex all prove insignificant at levels of 70 percent or less

[3] Alternative model specifications were run to test the contribution of each of the nine publication categories on which observations were collected No single category of publications proved a significant contributor to salary However, when all publications including journal articles were lumped into a single variable, a coefficient of $177 79, with a t-value of 2 06 was derived, and coefficients of all other variables remained approximately the same as those shown in table 6

Table 6—Regression results for sample of ERS agricultural economists

Variable	Estimated coefficient
Intercept	21,994 22 (22 25)
Ph D	6,980 82 (9 14)
Journal articles per year	399 58 [1] (71)
All other publications per year	164 82 (1 78)
Months since highest degree	18 90 (3 90)
Tenure with ERS (months)	41 09 (6 99)
Washington, D C , location	146 02 [1] (19)
National Economics Division	1,581 21 (2 26)
Administrator	7,177 11 (7 20)
Career interruptions	-116 23 [1] (15)
Sex (female = 1, male = 0)	-856 48 [1] (1 03)
F	71 38
R^2	810
Number of observations[2]	161

Note Numbers in parentheses are t values (absolute value) Unless designated otherwise, coefficients are significant at a 95 percent level or more

[1] Coefficient is statistically insignificant at a 70-percent level or less

[2] Observations comprise the full set of completed responses to the ERS survey by individuals in professional levels (GS 9 through GS-15) of the Federal economist job series

istrative responsibility receive economic rewards that make the largest single contribution to a Federal agricultural economist's salary

Possession of a Ph D , although the most highly significant independent variable in this, Lee's, and Strauss and Tarr's analyses, seems to contribute almost twice as much to academic salaries as it does to ERS professional salaries This finding most likely reflects differences in the missions of the institutions—particularly the relative focus on teaching and state-of-the-art research, where a Ph D is highly desirable, versus providing timely economic intelligence, where one's formal analytical training has less relevance The difference in mission may additionally explain the relatively higher level of significance associated with the current job tenure variable in the ERS-based model Timely provision of useful economic information requires the experience and subject matter knowledge that accumulate through tenure in a job The products of such work also may not be appropriate for publication in research journals Thus, it is not surprising that journal publication is found insignificant, whereas total publication record is important in determining ERS agricultural economists' salaries

Inclusion of a proxy variable for area of specialization in the ERS model helped to more fully explain salary differences among individuals, but the location variable did not increase the model's explanatory power Because locational considerations are technically not supposed to affect rank or salary and because all ERS employees, regardless of location, are restricted to identical pay scale and merit increase requirements, this finding, too, is not surprising

Perceptions regarding the impact of one's sex on rank and salary conflict with the analytical results Although the model results imply no significant salary differential between male and female professional employees, over 30 percent of the ERS economists sampled responded they perceived a gender-related disadvantage This finding suggests there may be a fairly sizeable gap between perception and reality

Conclusions

This study suggests that Lee's (1981) conclusion that "significant salary differentials between men and women exist after accounting for education, experience, research productivity, and other variables" should not necessarily be interpreted as having broad application to the profession of

agricultural economics It further implies that with regard to individuals' sex, the establishment of equal opportunity programs in Government, coupled with provisions of the Civil Service Reform Act, has been successful in restricting salary considerations to professional qualifications and performance On the basis of these findings, new entrants to the agricultural economics labor market can be advised not to enter the market carrying with them a presumption of the wide existence of sexual discrimination

Findings regarding the strong contribution of a Ph D to salary potential also have implications for students and other participants in the agricultural economics labor market Those who currently perceive that degree as a "white elephant" should be advised, a Ph D does currently seem to yield higher income in this profession

Finally, for those agricultural economists who already possess a Ph D and are employed in the Federal Government, this study suggests that as they maintain employment with the Government, continue to produce published output, and adopt managerial or administrative duties, they can expect commensurate increases in salary

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The Negative Income of Small Farms

By Roger P. Strickland*

One-third of U S farms have sales of less than $5,000 In the aggregate, these farms consistently have a negative net income from their production activities (table 1) [1] The inclusion of this size class in the all-farm statistics for 1981 reduced the total returns to operators by over 14 percent and returns to operators per farm by over 44 percent (2) [2] It distorts statistics necessary for farm income and financial analysis The purpose of this article is to examine the impact of including farms with sales of less than $5,000 in the aggregate U S Department of Agriculture (USDA) income and financial statistics and to suggest alternative criteria for defining a farm

Census Definition of a Farm

The current definition of a farm that both USDA and the Census Bureau use for gathering statistics is "any place from which $1,000 or more of agricultural products were sold or normally would have been sold " A decision as to whether establishments in a particular sales class should be defined as commercial farms might instead be based on a financial analysis of the "profit motive" of the average or typical establishment of that size Criteria based on the operator's motives would be difficult to apply by establishment, but a judicial assessment of a sales class seems feasible If the conclusion reached is that the representative establishment is consistently operated to make a profit, then that sales class should clearly be included in aggregate farm income statistics If such a conclusion is not reached, then a strong case can be made for excluding that sales class from aggregate farm income statistics purported to represent commerical producers

Table 1--Selected income statistics for farmers with sales of less than $5,000

Item	Year			
	1978	1979	1980	1981
	Thousands			
Farms	974	889	854	[1]843
	Million dollars			
Transactions summary				
Gross receipts	2,746	2,626	2,363	2,527
Total receipts[2]	5,219	5,006	5,170	5,526
Returns to operators	-2,473	-2,380	-2,807	-2,999
Off farm income	15,205	16,878	17,710	18,836
Balance sheet, January 1				
Assets	85,966	75,578	81,215	85,916
Debt[3]	11,605	9,965	10,389	11,119
Equity	74,361	65,613	70,826	74,797

[1] Equal to 34 6 percent of all farms
[2] Expenses for intermediate products, capital consumption, taxes, interest, wages to hired labor, and net rent to all landlords for farm production purposes only
[3] Includes Commodity Credit Corporation loans and excludes household income such as the imputed rental value of the operator's dwelling
Source (2, tables 47-50)

The consistently negative net income or returns to operators reported by USDA for the less-than-$5,000 sales classes may exist for two reasons [3] First, a farm may be in this group temporarily because of recent adverse conditions, hence, the business enterprise will either return to profitability or cease to operate Second, the composition of this group is relatively stable, and farm profits are not typically the principal reason for existence

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[1] In this article, the terms "returns to operators" and "farm income" are used interchangeably to represent income from the production of agricultural commodities Household based income and expense items such as "imputed value of operator dwelling" and "cost of operating the farm household," which are included in USDA's net farm income series, are not included in returns to operators

[2] Italicized numbers in parentheses refer to items in the References at the end of this article

[3] The smallest class reported has sales of less than $2,500, and the next smallest class has sales of $2,500 $4,999

If a farm-like establishment does not exist principally to profit from agricultural production, then two key questions are "Why does it exist?" and "Why does it produce and sell any agricultural commodities?" An important followup question is whether the decision leading to the creation and existence of the establishment and the decision to produce and sell agricultural commodities are independent, that is, "Are the objectives different, or are the decisions made at different times?"

A plausible reason for the existence of not-for-profit, farm-like establishments is to provide the amenities of rural living—including privacy and spaciousness, avoidance of air and noise pollution, fresh home-grown food, and recreational activities (including horses) Once a farm-like establishment exists, realizing its financial potential, by supplementing income from nonfarm sources with income from the production and sale of agricultural commodities and with reductions in income tax liabilities, becomes a logical extension Individual farm income-producing activities may have to at least recover variable costs, but the establishment itself need not be profitable

Another reason for the existence of unprofitable small farms is the potential for sheltering nonfarm income from taxes Interest and property taxes are automatically deductible, but a firm could realize additional tax-sheltering benefits only by causing other outlays to be treated as business expenses for purposes of computing State and Federal taxes Potentially the largest, and thus the most important, tax-sheltering "business" expenses are generally depreciation and associated tax credits from the purchase of buildings, equipment, and vehicles

IRS Definition of a Farm

The Internal Revenue Service (IRS) generally uses the criterion that a business must show a profit 2 out of 5 years as a rule-of-thumb in its selection of tax returns for audit and its consideration for possible disallowance of business expense claims A firm that declares a profit in less than 2 out of 5 years can avoid disallowance of business expenses by convincingly demonstrating that it was operated solely to earn a profit But, an establishment that consistently meets the 2-out-of-5-year rule is unlikely to have its motives questioned IRS does not insist that the cumulative annual income reported over time be positive

The same rules apply to all farms regardless of size, and all operators can be expected to take full legal advantage of them The difference is that establishments dependent on agricultural production as the primary source of their cash flow cannot consistently incur a deficit Even though they may recover as much as half the deficit in taxes refunded or avoided on income from nonfarm sources, they still must fund the balance This is not to say that all small farmers get most of their income from off-farm sources and that all large farmers do not See table 2 for a comparison of the average returns to operators from farm sources and off-farm sources by sales class

If the typical farm in the less-than-$5,000-sales class is operating more for tax advantages than for agricultural earnings, it can be expected to control its income and expense situations both to maximize the tax-sheltering effects and to meet the IRS's 2-out-of-5-year rule The tendency would be to report losses in 3 out of 5 years and to report only small profits in the remaining 2 years, with the average reported profit being less than the average reported loss The consequence would be a negative aggregate farm income for the group as a whole

Effect of Definition on Financial Statistics

The inclusion of those establishments with sales under $5,000 in the per farm statistics for the all-farm sales class affects the various statistical attributes in terms of magnitude and even direction of change (table 2) For example, in 1981, the inclusion increased both the number of farms (53 percent) and the average off-farm income (26 percent) It decreased the average value per farm of the following financial attributes assets (28 percent), debts (30 percent), equity (28 percent), gross receipts (34 percent), total expenses (32 percent), and returns to operators (44 percent)

The varying magnitudes and direction of these effects changed relationships and ratios computed when the financial attributes were applied For

Table 2—Selected financial and operator income statistics, by value of sales class, 1981[1]

Item	Less than $5,000	$5,000-$9,999	$10,000-$19,999	$20,000-$39,999	$40,000-$99,999	$100,000-$199,999	$200,000 and over	All farms	$5,000 and over
				Thousands					
Farms	843	335	286	278	396	186	112	2,436	1,593
				Dollars per farm					
Transactions summary									
Gross receipts	2,998	9,042	17,437	34,212	73,975	157,876	674,750	63,334	95,263
Total expenses[1]	6,555	12,316	20,448	36,791	70,929	140,812	505,455	56,083	82,293
Returns to operator[2]	-3,558	-3,275	-3,010	-2,579	3,045	17,065	169,295	7,251	12,970
Off farm income	22,344	18,418	14,021	10,165	8,543	11,753	17,125	16,146	12,864
Balance sheet, January 1									
Assets	101,917	153,370	226,682	359,403	605,864	1,041,118	2,211,196	403,639	563,308
Debts[3]	13,190	20,603	31,885	53,014	93,452	170,683	468,741	66,967	95,426
Equity	88,727	132,767	194,797	306,388	512,412	870,435	1,742,455	336,672	467,882

[1] Expenses for intermediate products, capital consumption, taxes, interest, wages to hired labor, and net rent to all landlords
[2] Assumes one operator per farm
[3] Includes Commodity Credit Corporation loans
Source (2, table 50)

example, two key financial statistics are the ratio of operator returns to equity, which permits us to compare the current operation's earnings relative to the opportunity costs of the equity capital, and the ratio of debt to operator returns, which indicates how much debt each dollar of profit must support The all-farm group (current definition) and the over-$5,000 group have operator's returns-to-equity ratios of 0 022 and 0 028 and debt-to-operator-returns ratios of 9 24 and 7 36, respectively These differences may appear small, but they represent a change of 27 percent in the former ratio and 20 percent in the latter

The preceding discussion may appear to suggest changing tax laws, but that is not the point Whatever the threshold established as the minimum farm size, there will be farms at the margin whose profit motives are questionable The total income sheltered is relatively small, particularly in view of the resources that would be required to evaluate and to litigate the profit motives of the numerous establishments

A recent USDA publication concludes that farmers do frequently alter management practices to take advantage of tax preferences (*1*) The authors note that in a tax-favored industry such as agriculture, with its use of cash accounting, the annual returns on investment consist of the commercial return from the sale of commodities produced and the returns from the management of tax assets and liabilities The authors contend that the tax system not only enhances the earnings of farm investors and operators, but also that the tax advantage is frequently more certain than the return from production Unfortunately, they do not sort out the response by sales class

A greater degree of certainty, of course, translates directly into an enhanced value being placed on the benefits, relative to those having a higher degree of risk This situation holds true for farm operations of all sizes, but those in the under-$5,000-sales group are distinct in that tax benefits may overshadow commodity production benefits

Summary

In 1981, farmers with sales of less than $5,000 sold only $2 53 billion worth of agricultural commodities out of a total of $154 28 billion (table 3) Thus, this smallest third of all farms sold only 1 6 percent of the Nation's total agricultural pro-

Table 3—Number of farms, gross receipts, and net returns to operators, by value of sales class, 1978-81

Year	Sales class							
	Less than $5,000	$5,000 $9,999	$10,000- $19,999	$20,000 $39,999	$40,000 $99,999	$100,000- $199,999	$200,000 and over	All farms
	Thousands							
Farms[1]	843	335	286	278	396	186	112	2,436
	Million dollars							
Gross receipts								
1978	2,746	2,908	5,214	10,035	25,590	21,269	51,429	119,192
1979	2,626	2,962	5,036	9 669	27,970	26,472	67,055	141,791
1980	2 363	2,775	4,615	8,831	26,745	26,402	67,740	139,471
1981	2,527	3,029	4,987	9,511	29,294	29,365	75,572	154,281
Net returns								
1978	-2,473	-362	143	1,015	4,636	4,679	14,392	22,031
1979	-2,380'	-527	-66	695	4,623	5,576	18 798	26,719
1980	-2,807	-1,007	-795	-652	1,057	2,682	15,083	13,561
1981	-2,999	-1,097	-861	-717	1,206	2,174	18,961	17,663

[1] Existing in 1981
Source (*2*, tables 47-50)

duction The smallest third consistently exhibits negative returns to operators in excess of $2 billion, more than 14 percent of the earnings of larger farms in 1981

The inclusion of these many small establishments in the official definition of a farm distorts both data collection and analysis related to the commercial production of agricultural commodities Funds expended to collect and tabulate data from these small establishments would have a higher marginal return if redirected to those farmers who produce and sell 98 percent of the commodities Redirection could take the form of a substantial increase in sample size and the collection of additional and useful statistics about each establishment

The definition of a farm is a sensitive subject, and efforts to change it often generate controversy Under some Federal programs such as the Hatch Act, funds are allocated to the States by means of formulas that include the number of farms

Thus, a change in farm definition unavoidably creates winners and losers But, the current definition includes far too many establishments that contribute little to the Nation's total agricultural production If changing the definition is deemed not to be a feasible alternative at this time, then at the very least, these smaller establishments should be segregated within the data base when people analyze and formulate public policy for commercial agriculture

References

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