

An Evaluation of Child Support Reforms

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Abstract. Among the policy changes proposed in the United States for determining equitable child support orders there is the proportionate order, which consists in setting orders as a percentage of the non-custodial parent's income and wage withholding which involves the improvement of the procedure of collection of child support payments with the use of automatic withholding.

In this paper we use US data to compare proportionate and fixed child support awards and the interaction of these order types with wage withholding. We conduct an empirical investigation of the effects of these systems on divorced fathers' child support transfer. Our empirical results show that wage withholding tends to alleviate the problem of non-compliance, while proportionate orders do not.

Introduction

Child support issues have been an active area of research and policy debate for some decades, mainly due to the substantial decline in welfare provisions for children living with only one parent.¹ Recently, changing family patterns have contributed to increase child poverty and nearly all of this increase can be attributed to the rising proportion of families headed by divorced or unmarried mothers.²

In the US, between 1960 and 1995, the proportion of children living with only one parent almost tripled. The Census Bureau has

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estimated that more than 50 percent of all children will spend at least some time of their life in single-parent households primarily due to divorce. Several studies have attempted to determine the nature of the relationship between divorce settlements and the consequent welfare of the children. In longitudinal studies, a reduction in real income of the custodial parent has been observed as the result of separation or divorce. It has been found that couples (with children) who remain married over the course of the observation period are better off, in terms of economic welfare, than couples who divorce. In 1990 only about half of the women who were owed child support received the full amount due.

Non-compliance with court-orders by many divorced fathers is a major cause of the growing number of children in poverty (Garfinkel and Melli 1982). Empirical evidence reveals that payments of child support awards from the non-custodial parent are frequently small. In spite of the fact that in many states new laws have been enacted to enforce child support contracts, most recent studies show that these changes have had very little impact on compliance behavior. Beller and Graham (1988) show that although the receipt rate rose over the period 1979 to 1984, real dollars received fell. As a result, the percent of children in poverty increased from 9.8 to 13.0 in households with both parents and from 52.3 to 57.6 in female-headed families over the same period.

Government intervention has been aimed at increasing the amounts transferred from non-custodial parents to children above those levels agreed voluntarily. The main criticisms of the child support system are that on average awards are too low and discretionary, they do not change over time and often payments are irregular. Recent proposals include rules to standardize and increase child support awards as well as moves to make child support collection more efficient.

Economists and sociologists have focused their attention on trying to identify the most appropriate criteria which should be used to establish the terms of redistribution schemes for the support of children. Recent research on child support issues have been concerned with normative problems involving the distribution of welfare between divorced parents and their children and studies assessing the efficiency of various child support policies in achieving certain normative goals (Betson et al. (1992), Garfinkel and Melli (1989), Garfinkel and Oellerich (1989), Garfinkel et al. (1990), Lazear and Michael (1988), Lerman (1989), Oellerich and Garfinkel (1983), and Williams (1987)). Other studies have considered more

closely the behavioral response of parents to child support orders and any income transfers associated with them. For example, Graham and Beller (1989), Maritato and Robins (1992) and Del Boca (1994) studied the effect of child support income on the labor supply of custodial mothers; Del Boca and Flinn (1994b) studied the effect of the mix of child support and non-child support income of custodial mothers on their expenditures on "child-specific" goods; Weiss (1984) studied the effect of divorce on the consumption patterns of single-parent households. More recently some attention has been directed to examine behavioral responses of fathers or both parents to child support orders (Del Boca and Flinn, 1995). Other research has analyzed more closely the effect of several child support reforms Garfinkel *et al.* (1990). Garfinkel and Klawitter (1990) have analyzed the effect of child support withholding on fathers' compliance, Garfinkel and Bartfeld (1992) and Meyer and Bartfeld (1994) have compared the effect of fixed child support orders versus child support orders expressed as a percentage of non-custodial income.

In this paper we focus attention on both the effects of percentage-expressed orders and fixed orders, and the withholding on non-custodial parents' compliance behavior. While the more traditional system (still used in most states of the US) obligations are set in fixed nominal terms at the time of the divorce settlement and infrequently updated, the relatively new dynamic system (where the obligations over a given period are determined as a proportion of the actual income of the non-custodial parent) has the advantage of giving the children an opportunity to share in the general income gains by non-custodial parent over the life cycle. Wage withholding system on the other hand improves the collection of child support.

The paper is structured as follows. Section 2 contains an informal description of some of the behavioral and welfare issues connected with the design of child support orders. In Section 3 there is an overview of the data used in the empirical analysis. Section 4 contains estimates of the relationships between transfers, amount of order, type of order and father's income in the year following the divorce. We find that order type has significant effects on transfers [also loosely interpretable as compliance given the regression function specification used], with fathers with fixed awards and routine withholding condition having the highest "compliance rates".

1. Policy issues

Until very recently US child support system rulings have been determined by the decisions of local judges on a case by case basis and therefore have been highly discretionary. Substantial variations in wage withholding assignment remain. Considerable heterogeneity is still reported among judges in the weight attached to various characteristics of parents and children in establishing alimony and child support as well as in wage withholding decision. Child support varies considerably across cases; families in similar circumstances are treated quite differently.

The 1988 Family Support Act contains provisions that are aimed to increase the contribution of non-custodial to custodial parents and to create general guidelines for the determination of child support orders which are more appropriate and equitable. Among the important changes in the child support system are the improvement of the collection of child support via an income withholding system and the proportionate award which consists in setting orders as a percentage of the non-custodial parent's current income.

Withholding from the income of the non-custodial parent was already possible in some states when the non-custodial parent had defaulted on complying with the child support obligation. The 1988 reform makes withholding automatic from the date when the awards are issued. Routine withholding was increasingly adopted during the 1980s and is more frequently used when the main source of income is dependent employment (87% of all divorce cases compared with 28% for self-employed). Garfinkel and Klawitter (1990) find that routine withholding has a positive effect on child support collections, although the estimated effects varied according to the measure used. They found that the effect of routine withholding raised the compliance rate by between 11% and 28% and the effect of routine withholding on the frequency of the transfers was to increase it by between 14% and 30%.

The proportionate award has also the objective of standardizing the child support and reducing heterogeneity from case to case. The proportionate award is to be based solely on the income of the non-custodial parent and the number of children involved. The rule is to award 17% of the absent parent's income if the parents have one child and 25%, 29%, 31% and 34% respectively for two, three, four and five or more children. This system has been introduced insofar only in Wisconsin.

However, even though the standard is the base for determining the amount of child support, judges are still free to express the award either as a percentage of income or as a fixed amount or a combination of the two (termed "hybrid orders"). Meyer *et al.* (1993) describe the use of hybrid orders in which the child support was explicitly stated as the maximum of an amount expressed either as a percentage of the father's income or a fixed amount. This type of order was introduced to ensure that the custodial parents received at least a minimum amount of transfer income even when the income of the non-custodial parent fall to low levels and to make it easier to determine whether the non-custodial parent was in default on his/her child support obligations.

From the viewpoint of social science theory, it is not difficult to list anticipated differential effects from percentage-expressed as opposed to fixed orders on the behavior of divorced parents. Some of these issues are concerned with how the different types of order affect the incomes of both parents [through labor supply, occupational, and financial and human capital investment choices] and particularly compliance incentives.³ If we view the earnings of the non-custodial parent as determined via a standard neoclassical labor supply framework, percentage orders will be "inefficient" in the sense that they distort labor supply decisions. Del Boca and Flinn (1994c) analyzed the effects of proportionate versus fixed order on labor supply and earnings, utilizing a statistical model of the income generating process of fathers before and after divorce. Their results show that the type of order has minimal effects on post-divorce income, but it would appear that the type of order awarded was not random. the post-divorce incomes of individuals who were given proportionate orders are significantly lower than the incomes of those who were given fixed orders and such differentials essentially mirror the situation in the pre-divorce period.

This inefficiency is an important consideration for policy makers even when the goal of child support transfers is only to increase the welfare of the custodial parents and their children. This is because compliance with an order of the proportionate type yielding a transfer of s produces less utility than compliance with a fixed order of s . Therefore non-custodial parents may be less likely to comply with proportionate orders than fixed orders, and of course compliance directly affects the welfare levels actually enjoyed by custodial parents and their children. Non-compliance may be encouraged under proportionate orders if it is relatively easy to

“hide” income from the custodial parent and/or her representatives in various government agencies.

It is possible therefore to imply that fixed orders apparently have much to recommend them as compared to proportionate orders. However, proportionate orders do offer normative and administrative advantages, one of which being such orders offer indexing while fixed orders do not. First current child support orders rarely keep pace with inflation or with increases in the living standards of non-custodial parents. Second, some non-custodial parents have lower awards than others in similar circumstances, who have their cases decided by judges who give high weight to custodial parents and their children. At least as equally important [in welfare terms] as providing a hedge against inflation, indexing directly links the welfare of the members of the divorced family. Proportionate orders provide a mechanism to transfer a portion of the welfare gains attributable to earnings growth to the custodial parent and children. Recent studies have shown that the economic status of mothers and fathers diverge substantially in the years after divorce. While mothers, who are the custodial parents in most cases, experience a strong decline in their income levels, fathers experience a substantial rise in their standard of living (Weitzman 1985).

The above arguments as well as earlier empirical analyses of the problem lead to the conclusions that proportionate order will be associated with lower compliance rates due to the difficulty in enforcing them. Therefore we would like to ascertain whether this is so after taking into account factors such as the relationship between the amount of the order and the different wage withholding regimes making allowance for any endogeneity in the types of order.

2. Data

The data set from which all the samples are extracted is the Wisconsin Court Record Data [WCRD], constructed from randomly selected court records of paternity and divorce cases in 21 counties over the decade of the 1980s. These data include information regarding the characteristics of the different cases, details of support orders and characteristics of both parents, including age, income and employment. Unfortunately, information about incomes is not available in a substantial number of cases.

Instead this data set has the advantage of containing very detailed information on the history of child support orders and payments.⁴

We use divorce cases which entered the courts between 1986 and 1989 in which there was a child support order with one parent designated as the payer. The data is from the court action in which a final judgement was issued. Other data used in the analysis refers to income levels and was obtained from the parents' state income tax returns. The Wisconsin Department of Revenue supplied this information but unfortunately it is limited because it is not available for individuals who have moved out of state, who have very low income levels, or who for other reasons were not required to file a state income tax return. The data regarding incomes are more likely to be missing in cases involving percentage-expressed orders.

Analyzing the issue of compliance with percentage-expressed orders is complicated as it is necessary to have access to income data so that it is possible to impute the dollar amount of orders in any given year. Thus the availability of an individual's income tax data is a prerequisite for the inclusion of an individual with a percentage order in this sample used to study compliance. For individuals with fixed orders, this is not so for the amount of order shown in the administrative records. However, in this study we have included only those individuals with fixed orders for whom all the income tax information was available. This was done so as to make the sample inclusion criteria symmetrical for both the percentage and fixed order cases. Generally speaking, percentage-expressed orders are used more often in the case of the younger non-custodial parents, which suggests that this type of order is used when the father's income is expected to increase. However, the most evident variation in the type of order seems to be at county level. This suggests that the preferences of the judge or family court commissioner may strongly affect the types of orders issued, contributing to the substantial variation which is to be found across counties. The county factor may also reflect differences in the administrative costs of ensuring compliance with percentage-expressed awards.

3. Reduced-form models of compliance behavior

In this section we examine the relationship between the characteristics of the child support order, which include whether it is percentage-expressed or fixed, whether there is withholding requirement, the amount of order, and the amount transferred from the father to the mother. The analysis presented here is based on a simple econometric specification of the relationships between these

characteristics and transfers. For the moment, it is assumed that all divorced fathers in the sample make positive child support transfers, t , to the mothers. The father's income is denoted by y_f and the amount ordered by s . Let P denote the indicator variable which is equal to 1 iff the father has a percentage-expressed order and let $F \equiv 1 - P$. Similarly, let W denote the indicator variable which is equal to 1 iff there is a withholding requirement, and let $N \equiv 1 - W$. The transfer rule is specified by

$$\ln(t) = \beta_1 P \cdot W + \beta_2 P \cdot N + \beta_3 F \cdot W + \beta_4 F \cdot N + \psi_1 \ln(s) \cdot P \cdot W + \psi_2 \ln(s) \cdot P \cdot N \\ + \psi_3 \ln(s) \cdot F \cdot W + \psi_4 \ln(s) \cdot F \cdot N + \eta \ln(y_f) + z\gamma + u, \quad [1]$$

where z is a row vector of observable covariates, γ is a conformable column vector, and u is a disturbance term which is mean-independent of all the right-hand side variables with the possible exception of the indicator variables for order type $\{p, F\}$ and withholding status $\{W, N\}$.

There are a few unusual characteristics in this regression function as compared to those initially forecast. First, note that apart from the indicator variables, the relationship between t , s and y_f is linear in the logarithms. As a specification to examine compliance there is potentially one serious defect and one real strength; the defect being that the transformation of the dependent variable, $\ln(t)$, is not defined for cases in which the father makes no transfer. While this would be a serious problem if *monthly* transfer amounts were being examined, it does not appear to be a serious problem in our data. The time unit of analysis is a year, and the proportion of fathers who make no transfer over the year in the population of divorced fathers with child support orders is relatively small. From an original sample size of 489 fathers, only 27 made no transfer over the year and were therefore excluded from the following analysis.

Specification [1] has the advantage that the effects of orders on transfers, represented by the ψ coefficients, are in fact elasticities. In this specification the elasticity of transfers to orders, the direct interaction of the type of order clearly depends on which type of order the authorities have designated for the father.

Thus it is possible to compare elasticities in a straightforward way across regimes. For example, an increase of one dollar in child support orders for a father with percentage-expressed orders (P) and subject to withholding (W) results in an increase in a transfer of ψ_1 dollars. These elasticities will be loosely interpreted as compliance rates, as seems natural.

Besides being expressed in logarithms, [1] differs from other previous specifications in other ways too. For example, Bartfeld and Garfinkel (1992) specify a regression function which relates levels of transfers as a function of regime and levels of orders but do not include an interaction term between the two. While incorrect specification of the relationship between orders, transfers, and regimes could cause the type of regime to have an essentially “independent” effect on transfers the overall interpretation of such an effect would seem to be uncertain. Clearly, the type of regime can be expected to affect the rate of compliance with an order of size s and in the regression function specification, this implies that an interaction term between the two is the appropriate specification.

Given specification [1], it will be useful to test whether there are any effects under the full model assumptions and in two special cases. The special cases correspond to situations in which (1) there is no interaction between the regime and the amount of order [consistent with most previous empirical analyses of this issue] and (2) there are interaction effects related to the amount of the order but no independent effects of regime on the amount transferred. Since the general specification nests the two special cases, it will be sufficient to specify the nature of the restrictions tested using [1].

We first test whether or not there are percentage-expressed order effects on transfer amounts given withholding effects. In this case, the restrictions tested are

$$H_0^P: \beta_1 = \beta_3, \beta_2 = \beta_4, \psi_1 = \psi_3, \psi_2 = \psi_4. \quad [2]$$

There are four restrictions in all under the model, two [$\beta_1 = \beta_3$ and $\beta_2 = \beta_4$] when the slope parameter ψ is restricted to be the same across regimes and two [$\psi_1 = \psi_3$ and $\psi_2 = \psi_4$] when the constant term β is restricted to be the same across regimes. As in all the cases considered in this section, the alternative hypothesis is that of no restrictions on the regression parameters.

The restriction of no withholding effects given percentage-expressed order effects is given by

$$H_0^W: \beta_1 = \beta_2, \beta_3 = \beta_4, \psi_1 = \psi_2, \psi_3 = \psi_4. \quad [3]$$

As was the case above, there are four restrictions under the full model and two each under the restricted models.

Finally, the null of no regime effects is given by

$$H_0^R: \beta_1 = \beta_2, \beta_1 = \beta_3, \beta_1 = \beta_4, \psi_1 = \psi_2, \psi_1 = \psi_3, \psi_1 = \psi_4. \quad [4]$$

In this case there are 6 restrictions in the full model and 3 each in the restricted versions.

Prior to estimating the model, testing for regime effects, and comparing elasticities, we have considered the potential problem of endogeneity. We have performed several tests to verify whether the order type can be considered exogenous and we have always rejected endogeneity. Given the negative results we do not report the estimates under endogeneity here.⁵ Given these results we will consider the type and amount of the order to be exogenous with respect to the transfer decision.

For the reduced-form compliance estimates, we utilize a sample of divorced fathers who satisfied the following criteria: (1) received child support orders in 1986, 1987, or 1988; (2) filed an income tax return for the year following the one in which they received their child support order; (3) had child support order information for the calendar year following the receipt of the order; (4) had valid child support transfer information for the year following the divorce; and (5) made positive transfers to the mother during the year following the divorce. Prior to imposing condition (5) there were 489 valid cases from the WCRD; imposition of (5) resulted in a small loss of 27 cases.

Descriptive statistics for this sample are contained in Table 1. First note from a comparison between columns 1 and 2 of the Table that the proportion of percentage order cases is virtually identical both before and after cases with zero transfers are excluded. On the other hand, cases with withholding are slightly over-represented when we impose the positive transfer requirement, which seems reasonable. In column 2, we see that approximately 22% of the individuals in the sample have percentage-expressed orders (100 cases). The majority of cases, 79%, are subject to mandatory withholding. The ratio of average transfers to average orders is approximately 0.88. The ratio of average orders to average income is about 0.20. Note that all monetary amounts expressed throughout the paper are denominated in terms of 1986 dollars.

Columns 3 and 4 of the Table give sample statistics for the percentage-expressed and fixed order groups. A larger proportion of fathers with percentage-expressed orders are subject to withholding. Average orders are slightly higher for the percentage-expressed cases, and average incomes are slightly lower. In other respects, such as age and number of children, the fathers in the two regimes are similar. Fathers with percentage-expressed orders are slightly younger, which may be related to the increasing trend in percentage-expressed order awards over this period [1986–88].

Table 2 contains probit estimates of regime probabilities. Column

1 contains univariate probit estimates of the model in which the dependent variable is the percentage-expressed order indicator. The logarithm of the father's income in the year *following* the divorce is used in the estimation exercise, because this is the only income variable included in this extract. We see that conditional on parental ages and number of children there is a positive relationship between income and the probability of a percentage-expressed order, though the effect is not statistically significant. The only parameter estimate more than twice its standard error is the age of the mother, which is negatively related to the receipt of a percentage-expressed order.

Column 2 contains estimates of the univariate probit model in which the withholding indicator is the dependent variable. Fathers with higher incomes are more likely to be subject to withholding, quite possibly because they have more stable employment patterns and thus are easier to subject to withholding in the first place.

Table 1. Descriptive statistics for reduced-form compliance analysis sample

Variable	Total sample	Sample with $t > 0$	Sample with $t > 0$	
			Percentage	Fixed
Percentage order	0.217	0.216	1.000	0.000
Withholding	0.773	0.790	0.880	0.765
Transfer amount	3867.710 (3303.196)	4093.745 (3259.265)	4029.327 (3134.456)	4111.540 (3296.909)
Order amount	4664.799 (4179.269)	4672.494 (4060.110)	5214.710 (3460.815)	4522.710 (4202.652)
Father's income	23642.349 (18180.103)	23518.872 (17394.809)	21882.416 (11710.961)	23970.932 (18650.437)
Mother's age	31.063 (6.666)	31.119 (6.638)	29.650 (6.122)	31.525 (6.725)
Father's age	33.376 (7.220)	33.450 (7.224)	32.280 (6.717)	33.773 (7.334)
No. of children	2.045 (1.105)	2.067 (1.030)	2.080 (1.070)	2.064 (1.020)
Ln transfer		7.994 (0.914)	7.990 90.896	7.996 (0.920)
Ln order		8.185 (0.754)	8.365 (0.653)	8.135 (0.773)
Ln father's income		9.896 (0.584)	9.867 (0.516)	9.904 (0.602)
Sample size	489	462	100	362

Table 2. Probability of percentage order and/or withholding univariate and bivariate probit estimates ($n = 462$)

	Percentage order only	Withholding only	Both	
			Percentage	Withholding
Constant	-0.523 (1.022)	-0.786 (1.066)	-0.498 (1.398)	-0.756 (1.106)
$\ln(y_f)$	0.052 (0.112)	0.217 (0.116)	0.048 (0.152)	0.214 (0.120)
Age_m	-0.496 (0.230)	0.002 (0.022)	-0.050 (0.023)	0.003 (0.022)
Age_f	0.017 (0.020)	-0.026 (0.020)	0.018 (0.020)	-0.026 (0.020)
No. of children	0.086 (0.070)	0.118 (0.073)	0.083 (0.070)	0.123 (0.073)
ρ	—	—		0.248 (0.095)
φ	-236.876	-232.790		-466.477

Fathers with larger numbers of children are also more likely to be subject to withholding.

Columns 3 and 4 contain estimates from the bivariate probit specification. The pattern of the coefficient estimates of λ_1 and λ_2 is virtually unchanged from the univariate results. The error term in the latent variable expression for percentage-expressed order, v_1 , is positively correlated with the error term in the latent variable expression for withholding, v_2 . Furthermore, the correlation coefficient is statistically different from zero and at conventional significance levels.

Regression results are presented in Table 3. The estimates of the restricted model in which regime type only shifts the intercept in the $\ln(t)$ regression function are presented. Note that the coefficient associated with $\ln(s)$ is 0.879, holding constant the father's income. Under our interpretation, for every dollar ordered approximately 88 cents is transferred to the mother. Also, for every dollar increase in the father's income, 18 cents is transferred to the mother, holding constant the order. This is interesting given that the standard order percentage for fathers with one child is 17%. One interpretation of this estimate is that this is the proportion of their income divorced fathers would choose to contribute to the mother even given ordered amounts.

In column 2 we present the estimates of the restricted model in which the regime only affects the elasticity of payments with respect to orders, or loosely speaking, the compliance rate. Note that the highest “compliance” rate is associated with fixed orders and withholding, while the lowest is associated with percentage-expressed orders without withholding. [This latter group comprises less than three percent of this sample.] Percentage orders with withholding and fixed orders without withholding have approximately the same compliance rates.

The regression estimates in column 3 indicate that among the more precisely estimated regime effects, the fixed order with withholding regime continues to be the highest compliance rate [0.95], relatively to the percentage order with withholding [0.74]. If for example child support awards are increased by ten percent,

Table 3. OLS regressions of $\ln(t)$ (Eicker–White Standard Errors)

Constant		-0.978 (0.536)	
$P * W$	-1.077 (0.537)		-0.268 (0.740)
$F * W$	-1.349 (0.569)		-2.393 (1.498)
$F * N$	-0.852 (0.551)		-1.745 (0.532)
$\ln(y_t)$	-1.090 (0.066)	0.182 (0.065)	0.049 (0.064)
$\ln(s) * P * W$		0.861 (0.050)	0.801 (0.094)
$\ln(s) * P * N$	0.830	0.901 (0.050)	(0.177)
$\ln(s) * F * W$	0.891	0.948 (0.050)	(0.094)
$\ln(s) * F * N$	0.858	0.696 (0.051)	(0.115)
Tests of regime effects			
No percentage order	10.510	11.125	14.325
Effect	(0.005)	(0.004)	(0.006)
No withholding effect	10.938	11.491	16.565
	(0.004)	(0.003)	(0.002)
No percentage order	25.193	27.721	39.421
or withholding effect	(<0.001)	(<0.001)	(<0.001)

compliance rates increase by four percent under fixed order and by three percent under proportionate order with wage withholding.

The test statistics for the various regime effects are reported at the bottom of the table. In general, the tests reveal strong regime effects no matter what the specification of the test. The characteristics of the order are an important determinant of the amount transferred.

4. Conclusions

In this paper we have investigated the effects of fixed and percentage-expressed child support orders and income withholding regime on the non-custodial fathers' child support transfer decisions, using US data.

The empirical evidence from the reduced-form analysis of the compliance decision has provided some general support for the idea that there are higher levels of compliance with fixed orders than proportionate orders, holding the income of the custodial parent and the child support order constant, when both were subject to withholding. As we have discussed above, proportionate orders have more to offer in terms of indexing and administrative costs, but fixed orders have probably more to offer in terms of behavioral effects. A regime such as the withholding one seems to have a strong and positive effect on compliance.

Notes

¹Good general summaries of the scope of the divorce problem and empirical research on the effects of custody and child support negotiations and arrangements on the welfare of children and divorced parents are contained in Weitzman (1985) and Maccoby and Mnookin (1992).

²The proportion of children living with only one parent has increased from 14.9 to 25% from 1970 to 1990 (US Bureau of the Census 1991).

³See Lerman (1989, 1990) and Beston *et al.* (1990) for general discussions and comparisons among different guidelines.

⁴The data are collected in ten cohorts. Since we are interested in comparing fixed and percentage-expressed orders our analysis is limited to cohorts first cohorts with a substantial number of cases where percentage-expressed orders (1986–89) were awarded.

⁵The results of the exogeneity tests are reported in Del Boca and Flinn (1994c).

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