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ESSAYS

LEGAL DIFFERENCES WITHOUT ECONOMIC DISTINCTIONS: POINTS, PENALTIES, AND THE MARKET FOR MORTGAGES

ALAN L. FELD AND STEPHEN G. MARKS*

INTRODUCTION

Economic analysis can serve many functions when applied to the law, most notably prediction (how people react to laws and lawmaking processes), evaluation (whether these reactions result in social efficiency), and description (which features of laws and lawmaking are salient). Here we propose to describe. We use economic analysis to show a legal difference without an economic distinction. We demonstrate the *economic equivalence* of two practices in the mortgage market. Interestingly, widespread bans exist on one of these practices, but no restrictions exist on the other.

Specifically, in this essay we examine the relationship among points, prepayment penalties, and financial regulation. We show that a mortgage loan with points contains an implicit, and easily calculable, prepayment penalty. Paradoxically, however, while many states and federal agencies ban explicit prepayment penalties, all accept points. Furthermore, lenders must disclose explicit prepayment penalties to borrowers. Yet, while regulations routinely require disclosure of other implicit information, such as the true interest rate (APR) of loans with points,¹ no regulation requires disclosure of the implicit prepayment penalties created through points.

Although we use economic analysis here primarily to describe, even mere description can, and does, lead to policy recommendations. In this case, descriptive economic analysis, coupled with existing norms for disclosure, suggests the desirability of additional disclosure requirements. Furthermore, by revealing contradictions in the treatment of points and penalties, this descriptive economic analysis indicates a need to rethink

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¹ See, e.g., Truth in Lending Act, 15 U.S.C. §§ 1605-06 (1994).

the current bans on mortgage penalties and the current treatment of points.

I. BACKGROUND

When an individual borrows to purchase a home, or secures a loan with a mortgage on the home, the lender and the borrower agree on a repayment schedule extending over a stated number of years. For two general reasons, the homeowner may later wish to prepay the loan. First, if interest rates decline, the homeowner who has borrowed at a fixed rate may seek to borrow at the lower rate and prepay the existing mortgage loan. Secondly, the homeowner may need liquidity and may seek to sell the home. Typically, this occurs when a homeowner desires to relocate and needs to convert the equity in the home to cash in order to purchase a new home in a different location. The homeowner may also require liquidity for other purposes, such as to pay off another loan, to start a new business, or to purchase another asset. When the homeowner seeks to sell the property, the mortgage agreement may not permit a new owner to assume the old mortgage. Alternatively, the purchaser may not want the outstanding mortgage with its particular interest rate, payment schedule, and duration. These situations condition the home transfer on prepayment of the mortgage.

Both types of prepayment risk present lenders with uncertainty regarding the timing of cash flows.² Interest rate motivated prepayments exacerbate interest rate risk, because such prepayments put the lender on the wrong side of any shift in the interest rates. If market rates rise above the mortgage rate, the borrower does not prepay the loan and the lender continues to receive the below-market rate. If market rates fall below the mortgage rate, the borrower prepays the loan and the lender must now re-lend the money at the lower market rate.

Consider a \$100,000 thirty-year mortgage loan with a nominal interest rate of 6% (0.5% per month) and monthly payments of \$599.55. Table 1 gives the present value of the loan, with and without the possibility of prepayment, for various market rates. With the possibility of prepayment, the borrower will prepay if rates fall to 5%, but not if rates rise to 7%. This eliminates the upside for the lender. The lender may still realize the downside.

At common law, courts differed as to whether a borrower could require a lender to accept prepayment of a loan. A majority of states did not give the borrower a right to prepay a mortgage loan, on the ground that pre-

² Often, the lender passes the risk of prepayment on to holders of mortgage-backed securities. The lender does suffer a cost from this risk, however, since the lender must compensate the holders of the mortgage-backed securities for taking the prepayment risk. In other words, loans with prepayment risk are worth less than identical loans without prepayment risk.

TABLE 1

Market Rate	Asset Value without Prepayment Possibility (PV)	Asset Value with Prepayment Possibility (PV)
7%	90,116.98	90,116.98
6%	100,000.00	100,000.00
5%	111,685.24	100,000.00

payment varied the provisions of the loan contract.³ Many states have reversed this rule and have enacted statutes to permit prepayment.⁴ In several states, however, the borrower has no general right to prepay and must ground any prepayment in the loan contract.⁵

To limit prepayment risk, a lender may seek to include a prepayment penalty in the mortgage. A prepayment penalty requires a homeowner who pays off a mortgage earlier than the maturity date to pay a monetary penalty in addition to the principal remaining on the loan. Currently, several states prohibit prepayment penalties in home mortgages, while others regulate prepayment penalties in various ways.⁶ Perhaps more sig-

³ See, e.g., *Smiddy v. Grafton*, 124 P. 433, 435 (Cal. 1912) (stating that where a mortgage is not due, the mortgagee cannot be compelled to accept payment and release the mortgage); *Pyross v. Fraser*, 64 S.E. 407, 407 (S.C. 1909) (holding that receipt of part of the debt before maturity was not a waiver of the creditor's right to hold the remainder of his investment until maturity); *Peryer v. Pennock*, 115 A. 105, 105 (Vt. 1921) (holding that payments cannot be made before the due date without consent of the person to whom the payments are due).

⁴ See, e.g., DEL. CODE ANN. tit. 5, § 969(a) (1993) ("An individual borrower may prepay a loan in full at any time."); FLA. STAT. ANN. § 697.06 (West 1994) ("Any note which is silent as to the right of the obligor to prepay the note in advance of the stated maturity date may be prepaid in full by the obligor or his successor in interest without penalty."); KAN. STAT. ANN. § 12-207(c) (1995) (prohibiting penalty when prepayment is made more than six months after execution of note).

⁵ See, e.g., *Promenade Towers Mut. Hous. Corp. v. Metropolitan Life Ins. Co.*, 597 A.2d 1377, 1387 (Md. 1991) (holding that, absent a provision for prepayment in the loan contract, a borrower does not have a right to prepay); *Boyd v. Life Ins. Co. of the Southwest*, 546 S.W.2d 132, 132 (Tex. Civ. App. 1977) (allowing a prepayment penalty where the note was silent as to prepayment).

⁶ See, e.g., MO. ANN. STAT. § 408.036 (West 1997) (limiting prepayment penalties to two percent of the loan balance at the time of prepayment and prohibiting any penalty after five years from loan origination date); N.J. STAT. ANN. § 46:10B-2 (West 1989) (allowing prepayment at any time without penalty); N.M. STAT. ANN. § 56-8-30 (Michie Supp. 1996) (stating that no prepayment penalty is enforceable); 41 PA. CONS. STAT. ANN. § 405 (West 1992) (prohibiting prepayment penalties); VA. CODE ANN. § 6.1-330.83 (Michie 1993) (stating that a prepayment penalty cannot exceed two percent of the amount of such prepayment). For a good discussion on the ability to prepay mortgage loans and prepayment penalties, including case law and statutory references, see generally Robert K. Baldwin, Note, *Prepayment Penalties: A Survey and Suggestion*, 40 VAND. L. REV. 409 (1987).

nificantly, both Freddie Mac and Fannie Mae have long-standing bans on prepayment penalties.⁷ The Federal Housing Administration likewise bans prepayment penalties in loans it insures.⁸

While many states ban or regulate prepayment penalties, no state or federal agency bans points. A mortgage with points requires payment of an upfront fee, typically in return for a lower nominal interest rate. Federal law requires that lenders state the true interest rate, known as the APR. For example, a 7.5% thirty-year loan of \$100,000 with monthly payments and 4 points has an APR of 7.92%. The lender calculates the APR assuming monthly payments of \$699.21 on a loan of \$96,000 (\$100,000 less the 4 points).

In this essay, we make no arguments about the wisdom of bans on prepayment penalties.⁹ Rather, we demonstrate that points entail an implicit prepayment penalty. Thus, if some states or agencies ban prepayment penalties as an important policy goal, then we assert that the effect of points on a borrower's prepayment options circumvents this goal. In addition, even in states that do not ban prepayment penalties, it is in the interest of consumer protection for legislation to require lenders to dis-

⁷ See GRANT S. NELSON & DALE A. WHITMAN, *REAL ESTATE FINANCE LAW* § 6.4, at 426 & n.18 (3d ed. 1994) (citing FNMA Conventional Home Mortgage Selling Contract Supplement § 301.05 and FHLMC Servicers' Guide § 4.113).

⁸ See 24 C.F.R. § 203.22(b) (1996) (permitting prepayment in whole or in part on any installment without penalty).

⁹ The bans imposed by states were probably motivated by pro-consumer sentiment that regarded as unfair the imposition of a penalty on a homeowner who sold his home. Lenders typically have been regarded as having greater sophistication and bargaining power than home mortgage borrowers. Moreover, restraints on prepayment may indirectly restrain alienation of property, especially since lenders typically do not have to permit other would-be borrowers to assume the loan. The possibility that prepayment could also arise when a homeowner seeks to take advantage of lower interest rates by refinancing either was not considered or was not weighed as heavily. In a sophisticated and liquid financial market that allows institutional lenders to hedge against interest rate declines at relatively low costs, a ban on prepayment penalties may operate to shift the risks of declining interest rates and the costs of hedging to the party better able to internalize them. If the ban on prepayment penalties systematically burdened lenders, we would anticipate that mortgage interest rates would rise somewhat to compensate them.

The Fannie Mae and Freddie Mac bans on prepayment penalties, dating from 1979, may stem from similar considerations. In June 1994, Fannie Mae extended the prohibition on prepayment penalties to penalties incorporated by rider even if not present in the principal documents. In the wake of recent refinancings by homeowners to benefit from declining interest rates, Fannie Mae and Freddie Mac may have to reconsider their policies. To the extent that points substitute for prepayment penalties without overtly altering the financial product as it appears in the secondary market, points may provide an efficient substitute for explicit penalties in reducing the incidence of prepayment.

close prepayment penalties, whether explicit or implicit.¹⁰ Currently, no state nor the federal government has passed such disclosure legislation.

II. THE ARGUMENT

We sketch our argument using an example. We begin with a mortgage with no points and no explicit prepayment penalty. We then add an explicit prepayment penalty schedule. Finally, we replicate the prepayment penalty schedule using points.

A. *Loan A—The Conventional Loan: No Prepayment Penalty, No Points*

For ease of exposition, we begin with a five-year loan of \$97,000 with annual payments and an annual interest rate of 10%.¹¹ For the moment we assume a zero tax rate and also lay aside other costs associated with refinancing, such as those of title searches and appraisals, which might affect the refinancing decision. As Table 2 indicates, a 10% rate implies five annual payments of \$25,588.36.

TABLE 2

Loan A: \$97,000, 10% per year, 5 years, no points				
Year	Annual Payment	Interest Component	Principal Component	Principal Remaining
0				97000.00
1	25588.36	9700.00	15888.36	81111.64
2	25588.36	8111.16	17477.20	63634.44
3	25588.36	6363.44	19224.92	44409.52
4	25588.36	4440.95	21147.41	23262.11
5	25588.36	2326.21	23262.11	0.00

We interpret Table 2 as follows. The annual payment column represents the amount due on each payment date occurring at the end of each year. Since we have fully and uniformly amortized the loan, the borrower pays the same amount at the end of each year. The next two columns allocate this payment into its respective interest and principal components. We calculate interest by taking ten percent of the amount of the principal remaining after the previous payment, one year earlier. We subtract the interest component from the annual payment to get the prin-

¹⁰ The beneficial effects of disclosure on consumer choice, however, may be smaller than predicted or hoped. See, e.g., Edward L. Rubin, *Legislative Methodology: Some Lessons from the Truth-in-Lending Act*, 80 GEO. L.J. 233, 235-36 (1991) (presenting various empirical studies that suggest a weak correlation between disclosure and consumer choice).

¹¹ We consider a more traditional 30-year mortgage with monthly payments below.

cial component. Finally, we reduce the principal remaining by the amount of the principal component paid each year.

In lieu of paying the annual payment, the borrower can pay off the loan completely by paying the annual payment plus the principal remaining. The borrower suffers no penalty for prepaying.

B. *Loan B—Loan with a Prepayment Penalty*

Lenders prefer to discourage prepayment because prepayment often occurs when interest rates fall. A lender can then re-invest the repaid funds only at a lower rate of return. Where the law permits, lenders can discourage prepayment by including in the loan agreement a prepayment penalty schedule. Suppose that the lender designs the prepayment penalty schedule given in Table 3:

TABLE 3

<u>Prepayment After:</u>	<u>Penalty:</u>
One Year	\$2118.60
Two Years	1347.18
Three Years	714.21
Four Years	252.54
Five Years	0.00

The lender penalizes earlier prepayment to a greater extent than later prepayment.¹² The penalty benefits the lender because it makes prepayment less likely even in the face of lower interest rates. If the borrower nevertheless prepays, as when interest rates fall enough to make prepayment profitable to the borrower even with payment of the penalty, the lender receives partial compensation as compared with the no-penalty loan. Finally, regardless of the interest rate, the lender collects the penalty if the borrower must prepay for liquidity reasons.

Just as the prepayment penalty benefits the lender, the prepayment penalty harms the borrower, who cannot benefit as easily from lower interest rates. If interest rates have not fallen sufficiently to overcome the penalty, the borrower may not refinance even though interest rates may have declined enough to warrant prepayment absent the penalty. In other cases, the borrower may refinance and pay the penalty. And, again, a borrower must pay the penalty when prepaying for liquidity reasons. In all of these cases, the borrower suffers relative to a borrower with an equivalent loan without a prepayment penalty. Table 4 shows the loan with the prepayment penalty in place.

With Loan B, the borrower may prepay in any given year by paying the sum of the annual payment and the corresponding prepayment amount.

¹² Prepayment penalties typically decline over the life of the loan. We have chosen these specific numbers for subsequent comparison.

TABLE 4

Loan B: \$97,000, 10% per year, 5 years, no points, prepayment penalty						
Year	Annual Payment	Interest Component	Principal Component	Principal Remaining	Penalty Amount	Prepayment Amount
0				97000.00		
1	25588.36	9700.00	15888.36	81111.64	2118.60	83230.24
2	25588.36	8111.16	17477.20	63634.44	1347.18	64981.62
3	25588.36	6363.44	19224.92	44409.52	714.21	45123.73
4	25588.36	4440.95	21147.41	23262.11	252.54	23514.65
5	25588.36	2326.21	23262.11	0.00	0.00	0.00

The prepayment amount is the sum of the remaining principal and the penalty.

C. *The Effect of the Penalty*

We can illustrate the effect of this penalty by assuming that interest rates have dropped to 9% after one year. With Loan A, the borrower could take out a new four-year loan in the amount of \$81,111.64 at 9% to pay off the remaining principal. The borrower would pay \$25,036.62 annually for the next four years. Thus, the borrower's payments drop by more than \$500 in years two through five. The borrower in Loan B cannot duplicate these savings. This borrower would have to take a new loan of \$83,230.24 which, at 9%, would produce an annual payment of \$25,690.56. Because this payment exceeds the annual payment under the original loan, the borrower will choose not to refinance. The prepayment penalty thereby prevents the borrower from obtaining an advantage from the decline in the interest rate.

D. *Loan C—Loan with Points*

Now suppose that the law prohibits the lender from issuing a loan with a prepayment penalty. Instead of the \$97,000 loan as in Loan A, the lender makes a \$100,000 loan with 3 points. Since the 3 points must be paid up front, the net amount of cash the lender actually transfers to the borrower is \$97,000. In order for the annual payment to be the same as in Loan B, the lender establishes an interest rate of 8.8186%. Table 5 presents this loan.

TABLE 5

Loan C: \$100,000, 8.8186% per year, 5 years, 3 points				
Year	Annual Payment	Interest & Points	Principal Component	Principal Remaining
0		3000.00		100000.00
1	25588.36	8818.60	16769.76	83230.24
2	25588.36	7339.74	18248.62	64981.62
3	25588.36	5730.47	19857.89	45123.73
4	25588.36	3979.28	21609.08	23514.65
5	25588.36	2073.66	23514.65	0.00

Loan C and Loan B appear much the same. With each loan, the borrower nets \$97,000 initially and pays \$25,588.36 annually for five years. A borrower wishing to prepay must pay the same amount under the two loans. For example, to prepay after the first year, the borrower must pay the annual payment of \$25,588.36, plus \$83,230.24 under either loan.

III. THE IMPLICIT PREPAYMENT PENALTY

If held to maturity, Loans A, B, and C are identical. The borrower receives the same amount initially and makes the same annual payments.¹³ If the borrower prepays the loans, however, the consequences differ. Loan A has no prepayment penalty. Loan B has an explicit prepayment penalty. Loan C has an implicit prepayment penalty. Therefore, it costs more to prepay Loans B and C than to prepay Loan A.

The implicit prepayment penalty of Loan C derives from the fact that the points operate as a prepayment of interest to be spread over the life of the loan. The lender does not refund this interest in the event of a prepayment of principal, thereby creating an effective penalty.¹⁴

We can see this effect from another perspective. A borrower who contemplates refinancing makes a comparison between the then-prevailing market interest rate and the *nominal* rate stated in the existing loan. The nominal rate of Loan C is below that of Loan A, to compensate the borrower for the prepayment of interest. Thus, rates must fall further for the Loan C borrower to find refinancing advantageous than for the Loan A borrower.

We take no position on whether, as a matter of policy, regulators should discourage prepayment penalties. We believe, however, that the consumer should be aware of any explicit or implicit prepayment penalty. Consumers often may have choices between loans with or without points

¹³ They do have different tax effects, as discussed below. For now we continue with the assumption of no taxes.

¹⁴ More generally, a prepayment penalty arises under any contract for services to be rendered ratably, if the purchaser makes a nonrefundable prepayment. As an example, consider a sports team that pays an athlete a large signing bonus and then must decide mid-contract whether to retain the athlete or terminate the contract.

and should understand the consequences. As consumers and lenders come to understand the effect of points on future prepayment, lenders may compete on this basis as well as on the interest rate. Thus, for loans with points, we should require lenders at least to inform consumers that a prepayment penalty exists and, ideally, to disclose the amount of this penalty. Lenders can easily calculate the prepayment penalty implicit in points. This involves four steps:

1. Calculate the initial amount received—the principal less points.¹⁵
2. Calculate the true interest rate, the APR, taking into account both nominal interest and points. Federal consumer protection statutes already mandate the calculation and disclosure of this rate.¹⁶
3. Using the APR, the initial amount received, and the payments, construct a no-point, no-penalty loan that has these same characteristics. Call this the *reference loan*.
4. For each period, calculate the difference between the amount required for repayment of the loan in question and that of the reference loan. This is the implicit prepayment penalty.

Consider Loan C as an example. Loan C yields the borrower \$97,000 with five annual payments of \$25,588.36 and an APR of 10%. The reference loan—Loan A—consists of a no-penalty, no-point loan of \$97,000 at 10% with 5 annual payments. The difference in the remaining principal in each period represents the implicit prepayment penalty:

TABLE 6

Loan C: Implicit Prepayment Penalty			
Year	Principal Remaining Loan C	Principal Remaining Loan A	Implicit Prepayment Penalty
0	100000.00	97000.00	3000.00
1	83230.24	81111.64	2118.60
2	64981.62	63634.44	1347.18
3	45123.73	44409.52	714.21
4	23514.65	23262.11	252.54
5	0.00	0.00	0.00

IV. THE CONVENTIONAL 30-YEAR MORTGAGE

Large and long-lived implicit prepayment penalties can accompany a conventional self-amortizing home mortgage. Consider a 7.5% thirty-year loan for \$100,000 with monthly payments and 4 points. Such a loan

¹⁵ Ideally, we also subtract any fees involved. This would give the consumer the necessary information. Likewise, the APR should be calculated after subtracting fees and the reference loan of step three should be a no-penalty, no-points, no-fees loan.

¹⁶ See Truth in Lending Act, 15 U.S.C. §§ 1605-06 (1994).

yields the borrower \$96,000 and requires monthly payments of \$699.21. The equivalent point-free mortgage also yields the borrower \$96,000 and has monthly payments of \$699.21, but bears an interest rate of 7.9222%. Table 7 shows the remaining balances on these loans and the differences between them:

TABLE 7

End of year	Remaining Principal on Loan with Points	Remaining Principal on Equivalent Point-Free Loan	Implicit Pre-Payment Penalty
1	99078.17	95185.59	3892.58
2	98084.77	94304.27	3780.50
3	97014.25	93350.53	3663.72
4	95860.62	92318.44	3542.18
5	94617.44	91201.54	3415.90
10	86794.99	84080.14	2714.85
15	75426.67	73511.28	1915.39
20	58905.15	57826.03	1079.12
25	34894.52	34547.57	346.95
30	0.00	0.00	0.00

If held to maturity, both loans are equivalent. The borrower receives the same amount initially and makes the same payments. For every case of repayment, however, the borrower pays more with the points loan than with the no-points loan.

We believe that the consumer should be made aware of the implicit prepayment penalty. For example, suppose that the consumer must decide between a 7.5% loan with four points and a 7.9222% loan with no points. Current disclosure law would require the bank to provide only the information in Table 8:

TABLE 8

FIRST LOAN	
Nominal amount: \$100,000	
Nominal rate: 7.5%	
Points: 4	
Amount received: \$96,000	
Payments: 360 monthly payments of \$699.21	
APR: 7.9222%	
SECOND LOAN:	
Nominal amount: \$96,000	
Nominal rate: 7.9222%	
Points: None	
Amount received: \$96,000	
Payments: 360 monthly payments of \$699.21	
APR: 7.9222%	

This information makes the loans appear identical, when in fact they differ significantly. We would require the enhanced disclosure of Table 9:

TABLE 9

FIRST LOAN

Nominal amount: \$100,000

Nominal rate: 7.5%

Points: 4

Amount received: \$96,000

Payments: 360 monthly payments of \$699.21

APR: 7.9222%

Prepayment Penalty (Explicit or Implicit):

<u>End of Year</u>	<u>Penalty</u>
1	3892.58
2	3780.50
3	3663.72
4	3542.18
5	3415.90
10	2714.85
15	1915.39
20	1079.12
25	346.95

SECOND LOAN

Nominal amount: \$96,000

Nominal rate: 7.9222%

Points: None

Amount received: \$96,000

Payments: 360 monthly payments of \$699.21

APR: 7.9222%

Prepayment Penalty (Explicit or Implicit): None

From the above information, the consumer would know that, whether occasioned by a relocation decision or by a desire to take advantage of lower interest rates, the consumer must pay a penalty to prepay the loan. Indeed, a borrower would always prefer a mortgage without points unless a benefit such as a lower APR (not just a lower nominal rate) or tax advantages offset the prepayment disadvantage.

V. THE TAX IMPLICATIONS OF POINTS

To explore the tax implications of points, let us return to our original example of a five-year loan with annual payments. Compare Loan A (no points) and Loan C (points), assuming a 30% marginal tax rate for all years and full deductibility of annual interest payments. Note that, for Loans A and C, the total of interest plus points is the same (in dollars, not present value) for both loans. For Loan A, the sum of the interest payments is \$30,941.76. For Loan C, the sum of the interest payments, \$27,941.75, plus the points, \$3,000, equals \$30,941.75, the total interest in

Loan A (except for a rounding error of one penny).¹⁷ The pattern of the interest and points differs, however, and this will have tax implications. To determine the value of the interest deduction we must take the present value. We will use a discount rate of 10% for both loans, since both effectively are 10% loans.

The interest component of Loan A has a present value of \$24,780.19. (See Table 10). If we assume a tax rate of 30%, then the tax benefit of Loan A has a present value of \$7,434.06. To calculate the tax benefit of Loan C, we must know whether we can expense the points or whether we must deduct them on a straight-line basis.¹⁸ First let us assume expensing. At a tax rate of 30%, Loan C yields a total tax benefit with a present value of \$7,618.10. This benefit exceeds the tax benefit of Loan A by \$184.04. If instead we must deduct the points on a straight-line basis,¹⁹ there is a \$7,400.45 tax benefit, \$33.61 worse than Loan A.

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$$\begin{aligned} \text{Total interest and points} &= \text{Interest} + \text{Points} \\ &= (\text{Total payments} - \text{Principal}) + \text{Points} \\ &= \text{Total payments} - (\text{Principal} - \text{Points}) \\ &= \text{Total payments} - (\text{Initial amount received}) \end{aligned}$$

¹⁸ The Internal Revenue Code limits the deductibility of prepaid interest by a cash basis taxpayer and requires that prepaid interest generally be allocated to the period in which accrued. See I.R.C. § 461(g)(1) (1994). An exception exists for points that meet the following requirements: the debt must be incurred to purchase or improve the borrower's principal residence; the debt must be secured by the principal residence; and the payment of points in that amount must be an established business practice in the area. See *id.* § 461(g)(2). Thus, points incurred on a mortgage to finance the purchase of a principal residence generally are currently deductible, while points incurred on a loan to refinance a prior home loan are not currently deductible.

¹⁹ Cf. Rev. Proc. 87-15, 1987-1 C.B. 624-25 (authorizing ratable allocation of points over the life of the debt in many but not all cases for which current deductibility is not allowed). In the cases that fall outside Rev. Proc. 87-15, an allocation even less favorable to the taxpayer may result.

TABLE 10

<u>Loan A: \$97,000, 10% per year, 5 years, no points</u>				
Year	Annual Payment	Interest Component	Principal Component	Principal Remaining
0				97000.00
1	25588.36	9700.00	15888.36	81111.64
2	25588.36	8111.16	17477.20	63634.44
3	25588.36	6363.44	19224.92	44409.52
4	25588.36	4440.95	21147.41	23262.11
5	25588.36	2326.21	23262.11	0.00
Totals:	127941.80	30941.76	97000.00	
PV:		24780.19		
<u>Loan C: \$100,000, 8.8186% per year, 5 years, 3 points (expensed)</u>				
Year	Annual Payment	Interest & Points	Principal Component	Principal Remaining
0		3000.00		100000.00
1	25588.36	8818.60	16769.76	83230.24
2	25588.36	7339.74	18248.62	64981.62
3	25588.36	5730.47	19857.89	45123.73
4	25588.36	3979.28	21609.08	23514.65
5	25588.36	2073.66	23514.65	0.00
Totals:	127941.80	30941.75	100000.00	
PV:		25393.68		
<u>Loan C: \$100,000, 8.8186% per year, 5 years, 3 points (straight-line)</u>				
Year	Annual Payment	Interest & Points	Principal Component	Principal Remaining
0				100000.00
1	25588.36	9418.60	16769.76	83230.24
2	25588.36	7939.74	18248.62	64981.62
3	25588.36	6330.47	19857.89	45123.73
4	25588.36	4579.28	21609.08	23514.65
5	25588.36	2673.66	23514.65	0.00
Totals:	127941.80	30941.75	100000.00	
PV:	97000.02	24668.15		

The following recaps the present values of the tax benefit in each of the three cases (Loan A, Loan C expensed, and Loan C straight-lined):

Loan C (expensed)	\$7618.10
Loan A	\$7434.06
Loan C (straight-line)	\$7400.45

Loan C with a straight-line point deduction always costs the consumer more than Loan A, irrespective of the time of repayment.²⁰ Loan C with expensing costs the consumer more than Loan A for early prepayment

²⁰ This is true even though the remainder of the points not yet deducted can be deducted upon prepayment. The proof of this proposition is as follows. Consider two rules: (1) straight-line and (2) "economically-correct." Under the economically-cor-

but less for late prepayment. In effect, a consumer who chooses Loan C and who can expense the points trades off a tax benefit against a prepayment penalty. The net gain of choosing Loan C instead of Loan A depends on when the loan is prepaid. Table 11 compares the tax advantage (in present value) to the prepayment penalty for various prepayment dates.

If the consumer holds the loan to maturity, the consumer will have gained from the tax benefit without suffering any loss. The break-even point comes late in this loan, because in order for the tax benefit to outweigh the prepayment penalty, the prepayment penalty must fall below 30% of the points, given a tax rate of 30%. This condition holds because the present value of the tax advantage will never exceed 30% of the

rect method, the IRS would make the interest deduction each period the same as with Loan A. Mathematically,

$$X_{Ci} = I_{Ai} - I_{Ci} \quad (i)$$

where X_{Ci} is the point deduction for Loan C in period i , I_{Ai} is the interest deduction for loan A in period i , and I_{Ci} is the interest deduction for Loan C in period i . The straight-line method costs the borrower more than the economically-correct method irrespective of whether the loan is prepaid, since both result in the same overall deduction but the straight-line method gives that deduction in later periods.

Absent prepayment, the economically-correct method costs the borrower the same as Loan A. With prepayment, however, the economically-correct method costs the borrower more. We can see this as follows. Compare Loan A to Loan C with the economically-correct method of deducting points. Both loans have the same payments:

$$I_{Ci} + P_{Ci} = I_{Ai} + P_{Ai} \quad (ii)$$

P_{Ai} is the principal paid in period i for loan A and P_{Ci} is the principal paid in period i for loan C. Based on equations (i) and (ii):

$$P_{Ci} = X_{Ci} + P_{Ai} \quad (iii)$$

Now suppose that prepayment occurs just after making the j th payment. For loan C, the borrower can take an additional tax deduction for the points that would have been deducted for periods $j+1$ on. This additional tax deduction can be written as:

$$\text{Deduction} = \sum_{i=j+1}^n X_{Ci} \quad (iv)$$

On the other hand, the borrower must pay an implicit prepayment penalty that is the difference between the amount owed on Loan C and that owed on Loan A:

$$\text{Implicit Prepayment Penalty} = \sum_{i=j+1}^n P_{Ci} - \sum_{i=j+1}^n P_{Ai} \quad (v)$$

By substituting equation (iii) into equation (v), we see that the additional tax deduction equals the implicit prepayment penalty. Thus, if the tax rate is less than one, the prepayment penalty exceeds the tax benefit. Since Loan C with the economically-correct method costs the borrower more than Loan A, and since Loan C with the straight-line method costs the borrower more than with the economically-correct method, it follows that the straight-line method must cost the borrower more than Loan A for any or no prepayment.

TABLE 11

When Prepaid	Tax Advantage of Loan C, with expensing (relative to Loan A)	Prepayment Penalty (present value)	Net Gain
Immediate	900.00	3000.00	-2100.00
After 1 Year	659.62	1926.00	-1266.38
After 2 Years	468.36	1113.37	-645.01
After 3 Years	325.69	536.60	-210.91
After 4 Years	231.09	172.49	58.06
No Prepayment	184.04	0.00	184.04

points.²¹ This takes some time.

Consider again our thirty-year mortgage with 4 points and an interest rate of 7.5%. Table 12 lists the tax advantage and prepayment penalty relative to the reference mortgage loan:

TABLE 12

When Prepaid	Tax Advantage of Expensing Points (relative to no-points loan) (PV)	Prepayment Penalty (PV)	Net Advantage (PV)
Immediately	1200.00	4000.00	-2800.00
After 1 Year	1169.13	3597.05	-2427.92
After 2 Years	1139.36	3228.26	-2088.90
After 3 Years	1110.70	2891.00	-1780.30
After 4 Years	1083.13	2582.88	-1499.75
After 5 Years	1056.67	2301.70	-1245.03
After 10 Years	940.60	1232.64	-292.04
After 15 Years	851.21	585.97	265.24
After 20 Years	787.97	222.44	565.53
After 25 Years	750.32	48.17	702.16
Not Prepaid	737.75	0.00	737.75

In this loan, the tax advantage exceeds the prepayment penalty only if the borrower prepays the loan after the twelfth year. If the consumer cannot expense and must deduct on a straight-line basis, then Loan C costs the consumer more at every prepayment date (even if the loan is held to maturity) compared to an equivalent points-free mortgage.

CONCLUSIONS

We have used economic analysis in this essay primarily as a descriptive tool in order to reveal the salient features of the regulation of points and penalties. We have demonstrated that a mortgage with points can oper-

²¹ This holds as a necessary condition. Generally, the prepayment penalty must fall much below this, since even with a thirty-year loan, expensing does not yield a tax advantage equal to 30% of the points after the initial time period.

ate in a manner identical to a mortgage with a prepayment penalty. Thus, in every mortgage with points, there exists an implicit and *easily calculable* prepayment penalty. We have made no arguments about the wisdom of permitting such prepayment penalties. Although some states and federal agencies prohibit explicit prepayment penalties as an important policy goal, the use of points circumvents this goal. In addition, even if state and federal legislation permits prepayment penalties, we believe that legislation should require lenders to disclose prepayment penalties where they truly, and economically, exist.