A Debt Problem

debt repayments by state of nature:

	bad state	good state
probability	2/3	1/3
payment	25	100

Nominal Debt=100

Expected payments: $\dfrac{1}{3}100 + \dfrac{2}{3}25 = 50$

price of debt,
 security per dollar $= \dfrac{50}{100} = 0.5$

Buy Back: External Funding

Amount of debt reduction = 25

	bad state	good state
probability	2/3	1/3
payment	25	75

Expected payments $= 41\dfrac{2}{3} = 41.66$

Price per debt security $\dfrac{41.66}{75} = 0.56$

$ cost of buy back $= .56 \times 25 = 14$

P = price of debt security = 0.50

P' = new price of debt security = 0.56

gain to creditors (sellers & holders) = 100x0.56 - 100x0.50

$$=56-50=6$$

debt relief = 50-42 = 8

the externally funded costs = 0.56x25 = 14

gain to sellers   25x(0.56-0.50)=1.5

gain to holdout creditors   75x(0.56-0.500=4.5

total gain to creditors   100x(0.56-0.50)=6.0

AV = Average Value of debt = 0.5   (Price)
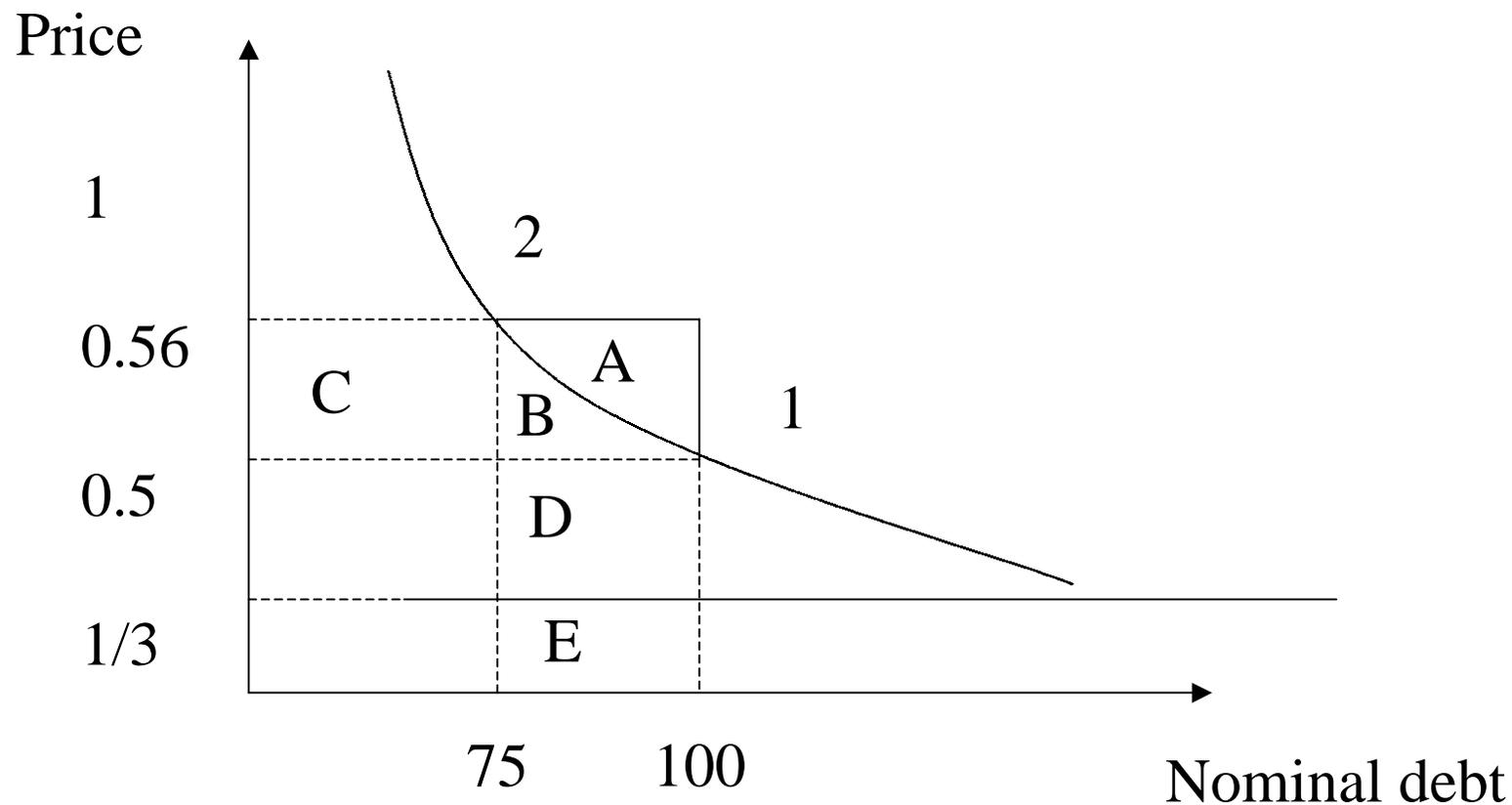
MV = Marginal value of debt = 0.33   (1/3)

$$MV < AV$$

MV is the change in the market value of debt (= Expected repayment to creditors) if the NOMINAL debt is increased by 1 unit.

Price

1

0.56

0.5

1/3

2

C

A

B

D

E

1

75   100

Nominal debt
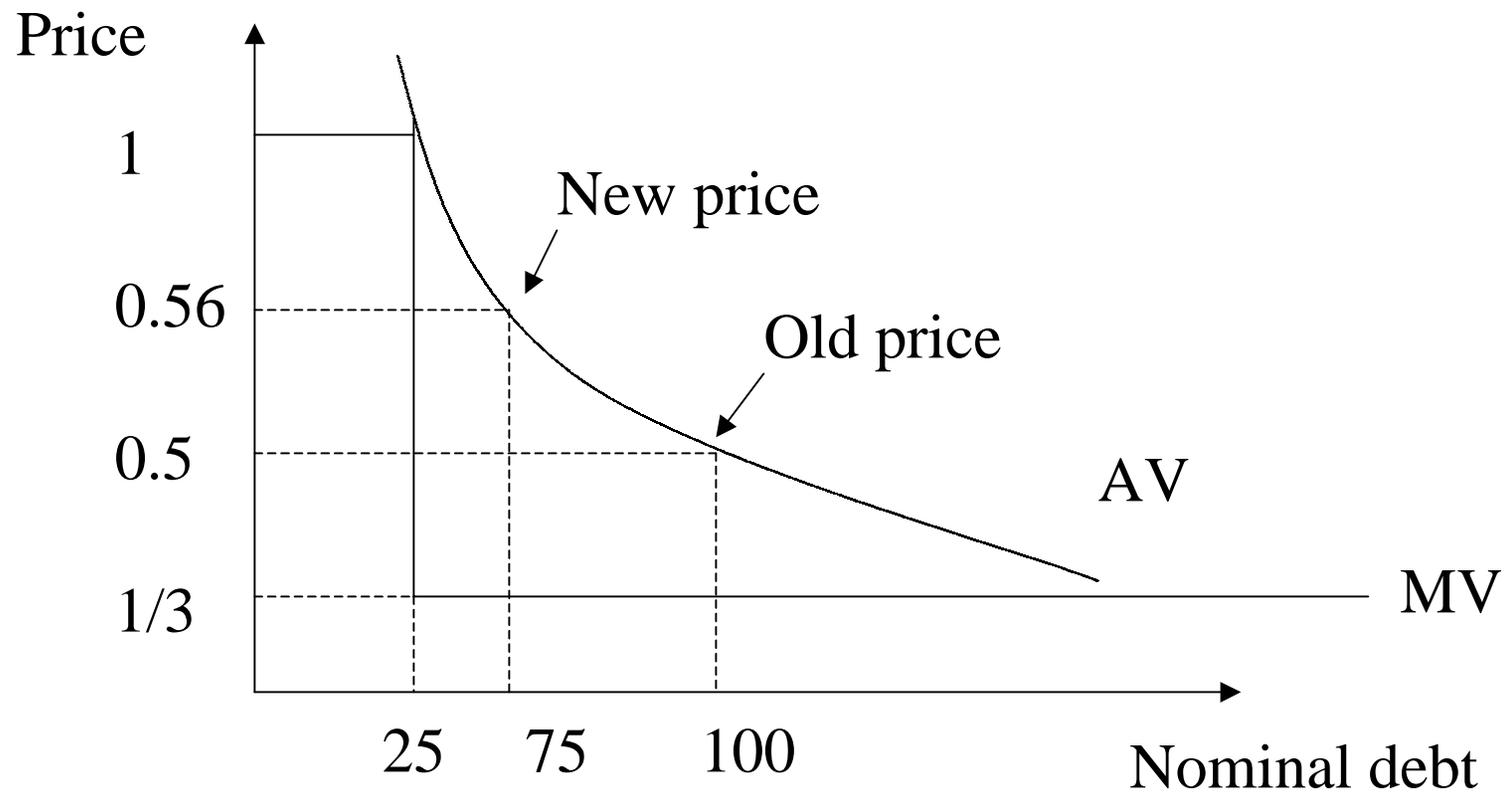
Gain to creditors = A+B+C
Gain to debtor   = D+E-C
Cost to IMF   = A+B+D+E