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## Figure 3.5, Dynamic Efficiency

### Preliminaries

```
thinn = AbsoluteThickness[.5];
medum = AbsoluteThickness[1.];
thick = AbsoluteThickness[1.5];
black = GrayLevel[0];
BGray = GrayLevel[0.3];
WGray = GrayLevel[0.6];
LGray = GrayLevel[0.85];
SetOptions[Plot, PlotStyle -> {{thinn, Black}, {thinn, Black}, {thinn, Black}},
  PlotPoints -> 40, ImageSize -> 360,
  FrameStyle -> medum, AxesStyle -> medum,
  BaseStyle -> {FontFamily -> "Helvetica", FontSlant -> Plain, FontSize -> 12}];
SetOptions[ListPlot, AxesStyle -> medum, PlotStyle -> medum, ImageSize -> 384,
  BaseStyle -> {FontFamily -> "Helvetica", FontSlant -> "Plain", FontSize -> 12}];
SetOptions[ParametricPlot, PlotStyle ->
  {{thinn, Black}, {thinn, Black}, {thinn, Black}}, PlotPoints -> 40,
  FrameStyle -> medum, AxesStyle -> medum, PlotStyle -> medum,
  BaseStyle -> {FontFamily -> "Helvetica", FontSlant -> "Plain", FontSize -> 12}];
SetOptions[Graphics, BaseStyle ->
  {FontFamily -> "Helvetica", FontSlant -> "Plain", FontSize -> 12}];
```

### Set-up (same as leading up to Fig 2.10)

```
p = .;
w = .;
q0 = 35 000.;
p0 = 3.;
elast = -0.5;
c = q0 / p0^elast;
wlog = c * p^elast;
plog = p /. Flatten[Simplify[Solve[w == %, p]]];
mc = 1.95 + 0.00003 * w;
mnblog = plog - mc;
```

Solve::ifun : Inverse functions are being used by Solve, so  
some solutions may not be found; use Reduce for complete solution information. >>

### MNB

```
mc = 1.95 + 0.00003 * w;
mnblog = plog - mc;
```

## Period 2

```
plog2 = plog * 0.5;
mc2 = 1.5 + 0.00002 * w;
mnblog2 = plog2 - mc2;
flipmnblog2 = mnblog2 /. w -> (50 000 - w);
```

## PV rotation

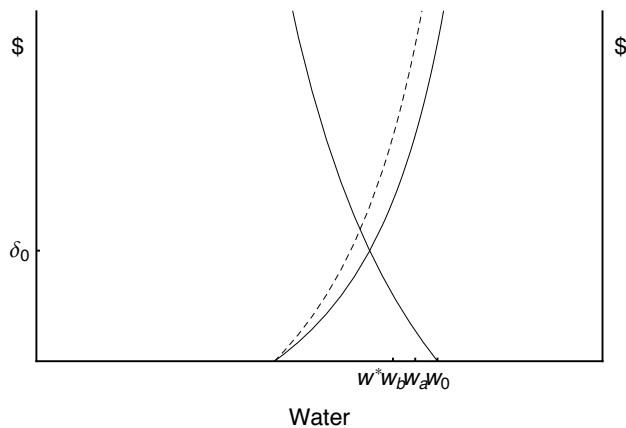
```
disc = 0.4;
FindRoot[mnblog - flipmnblog2 / (1 + disc) == 0, {w, 25 000}]
mnblog /. %
{w -> 28 912.6}

1.57889
```

## Graphing

```
p135a = Plot[{mnblog, flipmnblog2, flipmnblog2 / (1 + disc)},
  {w, 0, (q0 * 48.8) / 35},
  FrameLabel -> {Style["Water", FontSlant -> "Plain"], "", "", ""},
  PlotRange -> {0, 5}, Frame -> {{True, True}, {True, False}},
  PlotStyle -> {{thinn, black, Dashing[{1, 0}]},
    {thinn, black, Dashing[{0.01, 0.01}]}, {thinn, black, Dashing[{1, 0]}}},
  FrameTicks -> {{{28 912.6, "w*", {0.0, 0.}, {black, medum}},
    {31 000, "w_b", {0.00625, 0.}, {black, medum}}, {33 000, "w_a", {0.00625, 0.},
    {black, medum}}, {35 000, "w_0", {0.00625, 0.}, {black, medum}}},
    {{1.58, "δ_0", {0.00625, 0.}, {black, medum}}, {4.5, "$ ", {0, 0.}}},
    {},
    {{4.5, " $", {0, 0.}}}]

p135b = Plot[{mnblog, flipmnblog2 / (1 + disc)}, {w, 31 000, 33 000},
  PlotRange -> {0, 5}, Filling -> {1 -> {{2}, LGray}},
  Filling -> {1 -> {2}}];
```



```

p135 = Show[p135a, p135b,
Graphics[Text["MNB0", {21 200, 3.8}]],
Graphics[Text[" $\frac{MNB_1}{1+d}$ ", {37 400, 3.7}]],
Graphics[Text["MNB1", {30 300, 4.5}]],
Graphics[{Dashing[.015, .01], thinn, Line[{{0, 1.58}, {28 912, 1.58}}]}],
Graphics[{Dashing[.015, .01], thinn, Line[{{28 912, 0}, {28 912, 1.58}}]}],
ImageSize -> 384, AspectRatio -> 0.618]

```

