
Chapter 5, Natural Monopoly

```
thinn = AbsoluteThickness[.5];
medum = AbsoluteThickness[1.];
thick = AbsoluteThickness[1.5];
black = GrayLevel[0];
BGray = GrayLevel[0.3];
WGray = GrayLevel[0.6];
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}];
$TextStyle = {FontFamily -> "Helvetica", FontSlant -> "Plain", FontSize -> 9};

w = .;
a = 3300.;
b = -8.;
c = 0.01;
tc = 500 000. + 300 (a w + b w2 + c w3);
mc =  $\partial_w$  tc;
ac =  $\frac{tc}{w}$ ;
mb = 2.5 * 10.6 - 6.2 * 103 * w; Solve[mc == mb, w]
{{w -> -494.704}, {w -> 339.148}}

mc /. w -> 339.148
ac /. w -> 339.148
397 282.
522 583.
```

figure 5.1

```

p151a = Plot[{mb, mc, ac}, {w, 6, 550}, AxesLabel → {w, p},
  AxesOrigin → {0, 0},
  PlotRange → {0, 1500000},
  Ticks → {{{339.148, "w*", 0}}, {{397282., "p*", 0}}, {522583., "AC(w*)", 0}}];
p151 = Show[p151a, Graphics[Text["AC", {540., 6.5 * 10^5}]],
  Graphics[Text["MC", {510., 1.02 * 10^6}]],
  Graphics[Text["MB", {218., 1.33 * 10^6}]],
  Graphics[{Dashing[{.01, .01}], thinn, Line[{{339.148, 0.}, {339.148, 522583.}],
  Line[{{0, 522583.}, {339.148, 522583.}],
  Line[{{0, 397282.}, {339.148, 397282.}]}]],
  ImageSize → 360, AspectRatio → 0.5]

```

