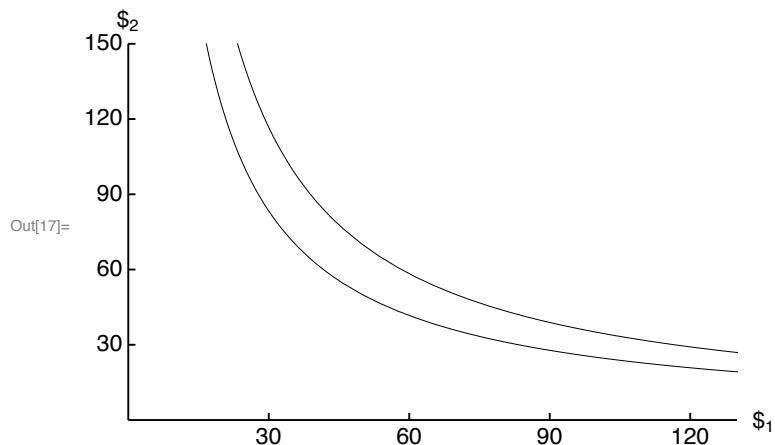


Figure 3.3, Intertemporal Indifference

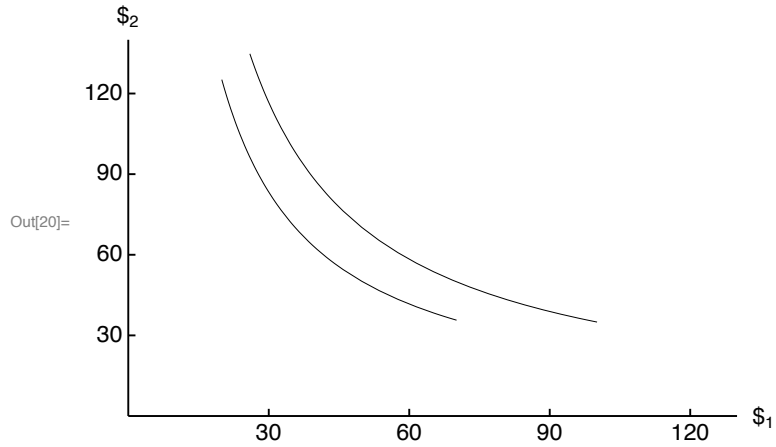
```
In[1]:= thinn = AbsoluteThickness[.5];
medum = AbsoluteThickness[1.];
thick = AbsoluteThickness[1.5];
black = GrayLevel[0];
BGray = GrayLevel[0.3];
WGray = GrayLevel[0.6];
SetOptions[Plot, PlotStyle -> {{thinn, Black}, {thinn, Black}, {thinn, Black}},
  PlotPoints -> 40, ImageSize -> 360,
  FrameStyle -> 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}];
```

Rough Idea

```
In[11]:= a = 1.;
b = 1.;
scale = .02;
shifter = 1.4;
dol2 = a / (scale * (dol1 * scale) ^ b);
dol2b = shifter * a / (scale * (dol1 * scale) ^ b);
Plot[{dol2, dol2b}, {dol1, 0, 150},
  PlotRange -> {{0, 130}, {0, 150}},
  Ticks -> {{30, 60, 90, 120, 150}, {30, 60, 90, 120, 150}},
  AxesOrigin -> {0, 0},
  AxesLabel -> {"$1", "$2"}]
```



```
In[18]:= truncd12 = Which[20 ≤ d11 ≤ 70, d12];  
truncd12b = Which[26 ≤ d11 ≤ 100, d12b];  
Plot[{truncd12, truncd12b}, {d11, 0, 150},  
PlotRange → {{0, 130}, {0, 140}},  
Ticks → {{30, 60, 90, 120, 150}, {30, 60, 90, 120, 150}},  
AxesOrigin → {0, 0},  
AxesLabel → {"$1", "$2"}]
```

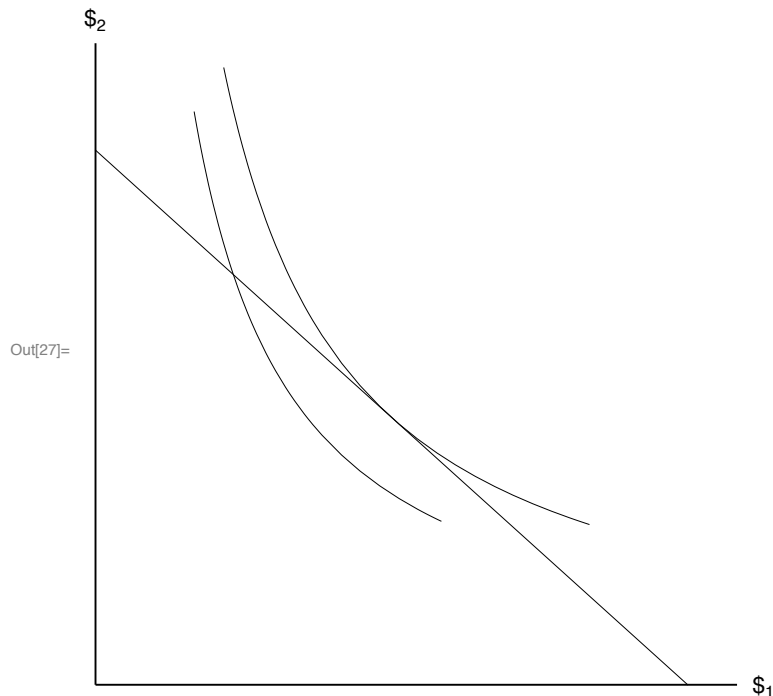


Get AB line and point B

```
In[21]:= B1 = 60.;  
B2 = dol2b /. dol1 -> B1;  
B = {B1, B2};  
slope = D[dol2b, dol1] /. dol1 -> B1  
intercept = B2 - slope * B1  
solid = slope * dol1 + intercept;  
pl33ii = Plot[{truncdol2, truncdol2b, solid}, {dol1, 0, 150},  
  PlotRange -> {{0, 130}, {0, 140}},  
  Ticks -> None,  
  AspectRatio -> 1.,  
  GridLines -> {{}, {}},  
  AxesOrigin -> {0, 0},  
  AxesLabel -> {"$1", "$2"}]
```

Out[24]= -0.972222

Out[25]= 116.667



Get dashed line

```
In[28]:= NSolve[dol2 == solid, {dol1}]
```

Out[28]= {{dol1 -> 92.0713}, {dol1 -> 27.9287}}

```

In[29]:= A1 = 27.9287;
A2 = dol2 /. dol1 -> A1;
A = {A1, A2};
dashslope = D[dol2, dol1] /. dol1 -> A1;
dashintercept = A2 - dashslope * A1;
dashed = dashslope * dol1 + dashintercept;
pl33iii = Plot[{dashed}, {dol1, 12, 44},
  PlotRange -> {{0, 130}, {0, 140}},
  Ticks -> None,
  AxesOrigin -> {0, 0},
  PlotStyle -> {Dashing[{.015, .015}]},
  AxesLabel -> {"$1", "$2"}];

```

Finalize

```

In[36]:= p133 = Show[{p133ii, p133iii},
  Graphics[Text["I1", {74, 34.0}]],
  Graphics[Text["I2", {104, 34.}]], Graphics[Text["A", {22, 86}]],
  Graphics[Text["B", {66, 61}]], Graphics[{PointSize[0.015], Point[A]}],
  Graphics[Text["slope=-(1+d)", {42, 30}]],
  Graphics[{PointSize[0.015], Point[B]}],
  ImageSize -> 360, AspectRatio -> 0.6
]

```

