

```
In [ ]: using Interact
using Gadfly

In [39]: set_default_plot_size(25cm, 12cm)
```

An Equilibrium Business-Cycle Model

Key Equation $C + \Delta K = A \cdot F(K,L) - \delta K$

```
In [4]: function MPK(A, K, L, α)
    return A*α*K^(α-1)*L^(1-α)
end
```

Out[4]: MPK (generic function with 2 methods)

```
In [11]: function MPL(A, K, L, α)
    return A*(1-α)*K^α*L^(-α)
end
```

Out[11]: MPL (generic function with 1 method)

```
In [38]: domain = linspace(0, 100, 100)
dY_dL_fixed = []
dY_dK_fixed = []

for level in domain
    push!(dY_dL_fixed, MPL(5, 50, level, .5))
    push!(dY_dK_fixed, MPK(5, level, 50, .5))
end

@manipulate for A in 1:10, K in 0:5:100, L in 0:5:100, α in 0.:1:1

    # Labor Market
    dY_dL = []
    for level_L in domain push!(dY_dL, MPL(A, K, level_L, α)) end

    labor_market = plot(
        layer(x=domain, y=dY_dL_fixed, Geom.line, Theme(default_color=colorant"blue")),
        layer(x=domain, y=dY_dL, Geom.line, Theme(default_color=colorant"red")),
        Coord.Cartesian(xmin=0, xmax=100, ymin=0, ymax=5),
        Guide.Title("Labor Market"),
        Guide.xlabel("Labor, L"),
        Guide.ylabel("Real Wage Price, (w/P), MPL")
    )

    # Capital Market
    dY_dK = []
    for level_K in domain push!(dY_dK, MPK(A, level_K, L, α)) end

    capital_market = plot(
        layer(x=domain, y=dY_dK_fixed, Geom.line, Theme(default_color=colorant"blue")),
        layer(x=domain, y=dY_dK, Geom.line, Theme(default_color=colorant"red")),
        Coord.Cartesian(xmin=0, xmax=100, ymin=0, ymax=5),
        Guide.Title("Capital Market"),
        Guide.xlabel("Capital, K"),
        Guide.ylabel("Real Rental Price, (R/P), MPK")
    )

    hstack(labor_market, capital_market)
end
```

A

6

K

50

L

50

α

0.5

Out[38]:

