Making a Scatter Plot and a Line Chart

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VISUALIZATION DESIGNER AND DEVELOPER

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Overview

More data joins
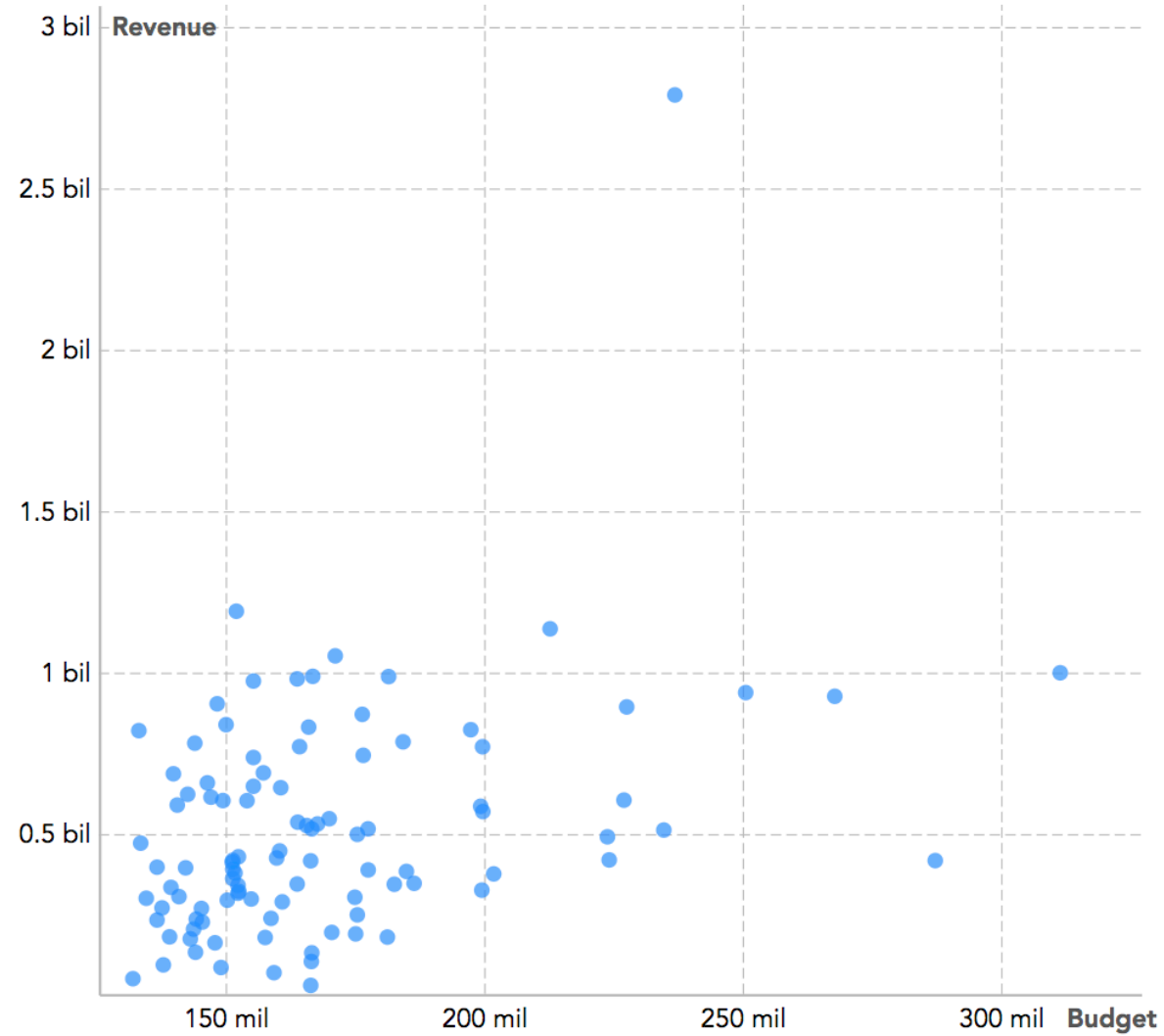
Visualisation process

Axis labels

Line chart data
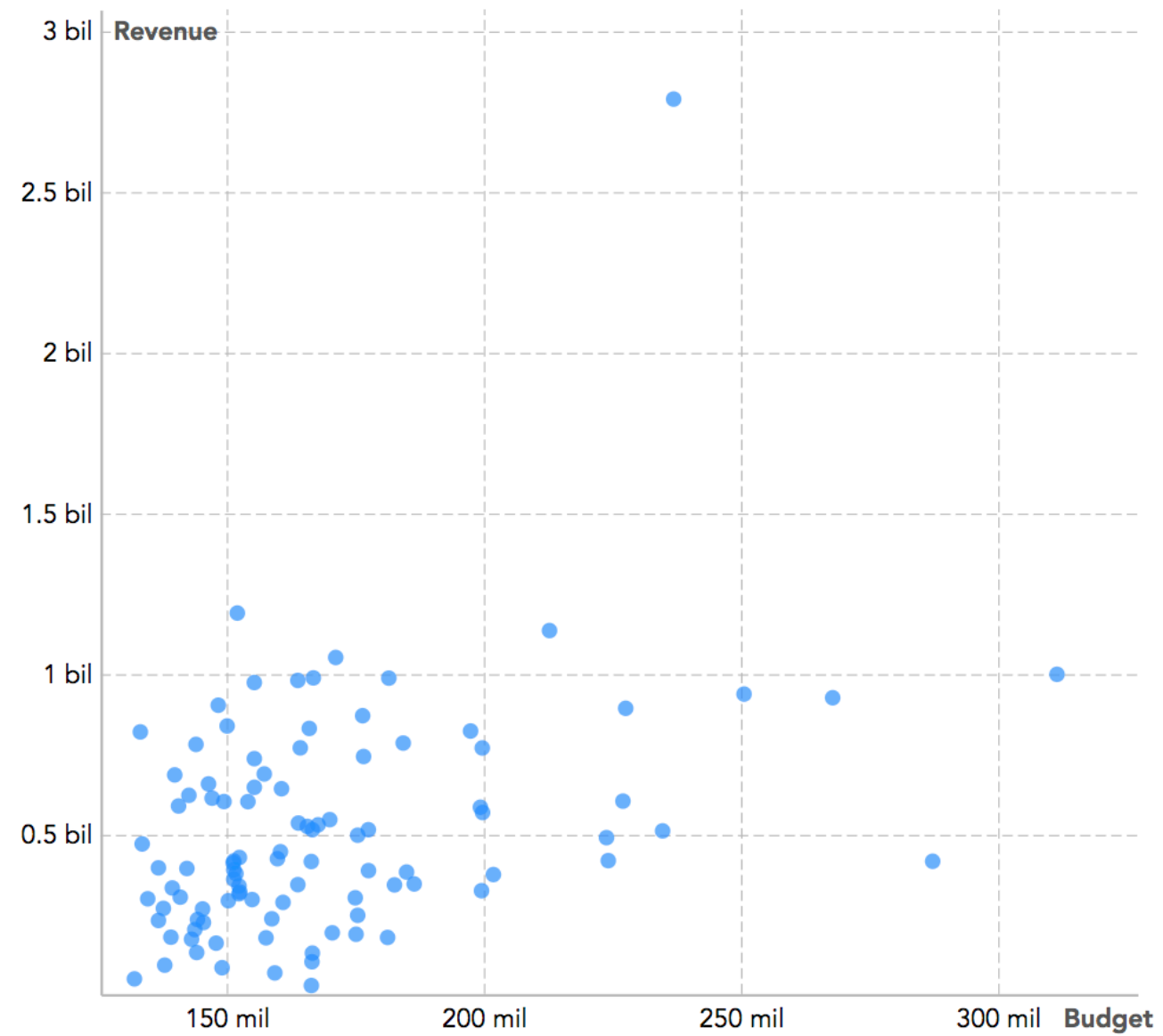
D3 line generator

What You'll Do

Scatter plot

Line chart

Scatter Plot

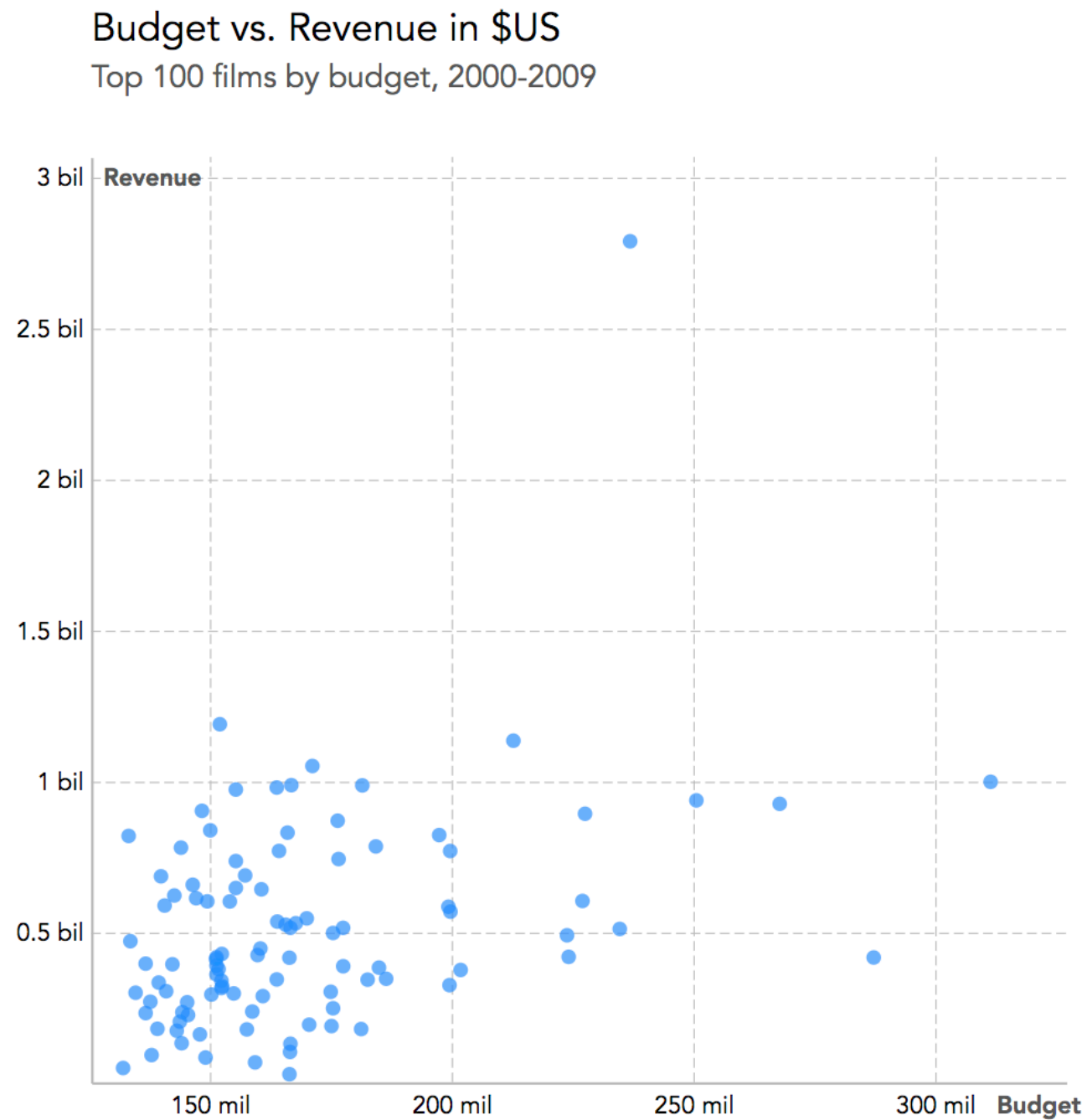## Budget vs. Revenue in $US
Top 100 films by budget, 2000-2009

Scatter Plot

Budget vs. Revenue in $US
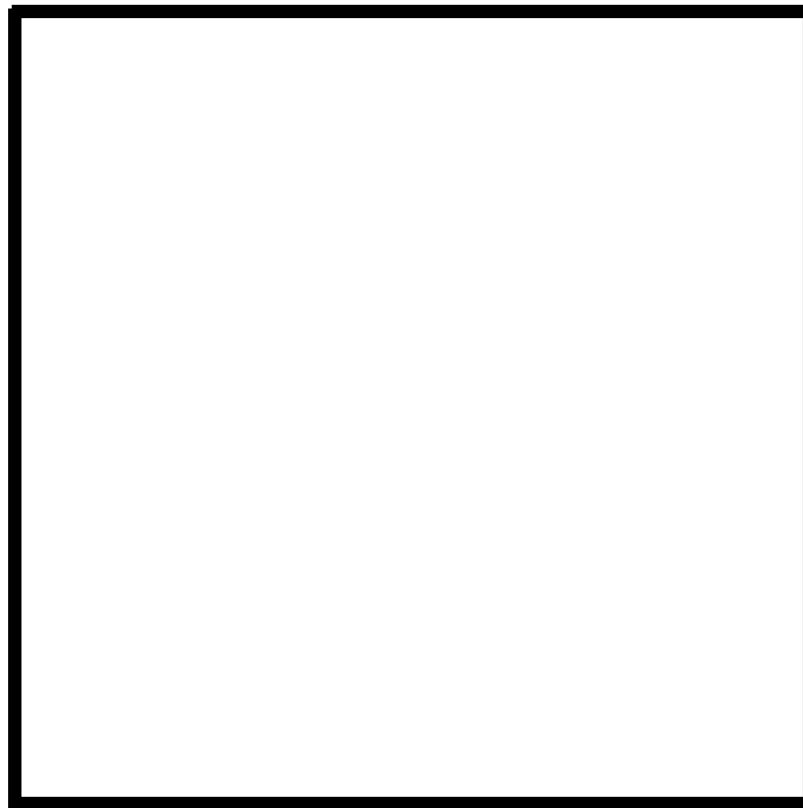Top 100 films by budget, 2000-2009

Process

1. Chart area with margins

2. Scales

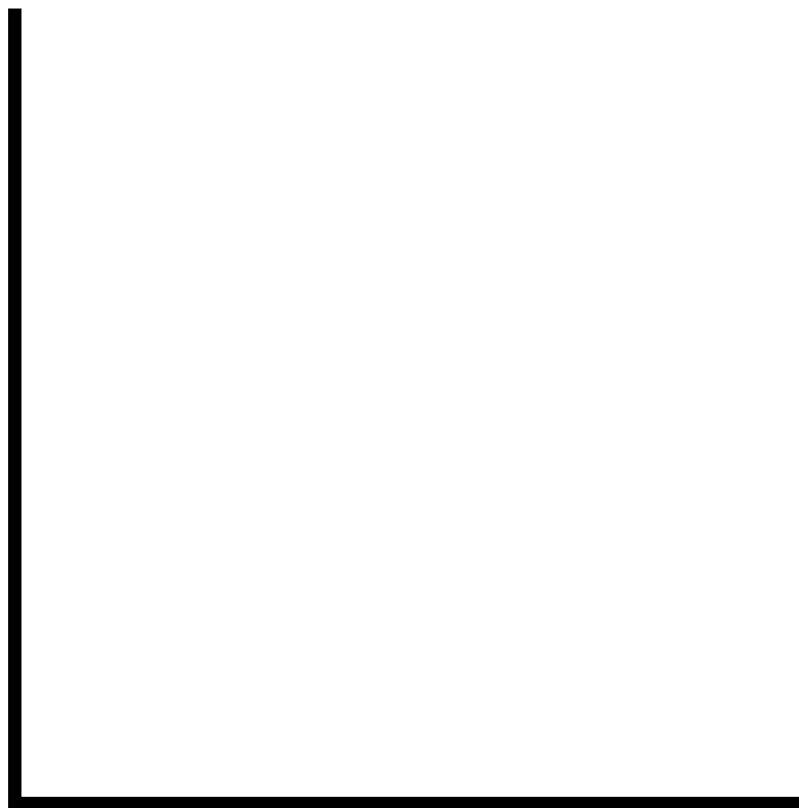3. Visual elements

4. Axes

5. Header

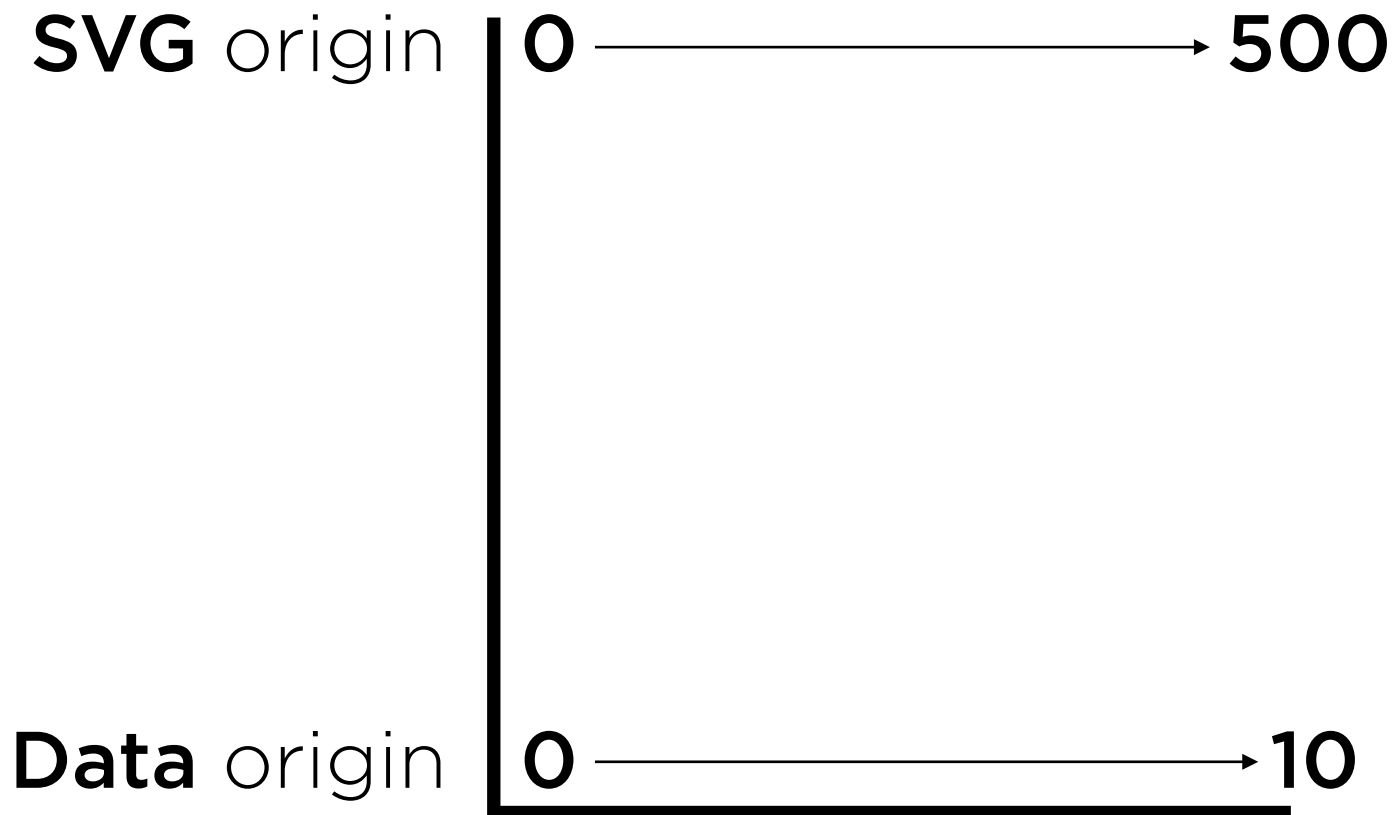# The Coordinate Flip

SVG origin

The Coordinate Flip

SVG origin

Chart origin

The Coordinate Flip

x direction

SVG origin 0 ——————————→ 500

Data origin 0 ——————————→ 10

```
d3.scaleLinear()
  .domain([0, 10])
  .range([0, 500])
```

The Coordinate Flip

x direction

SVG origin | 0   500

```
d3.scaleLinear()
  .domain([0, 10])
  .range([0, 500])
```
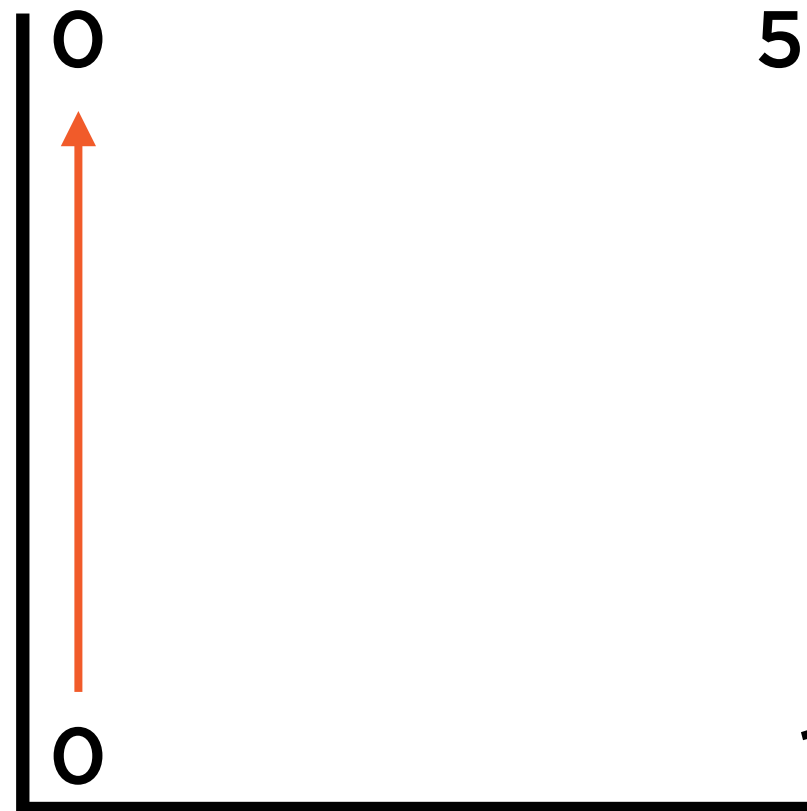
Data origin | 0   10

The Coordinate Flip

y direction

SVG origin

Data origin

The Coordinate Flip

y direction

Data   **SVG**

The Coordinate Flip

y direction

Data   SVG

10   0

0   500

The Coordinate Flip

y direction

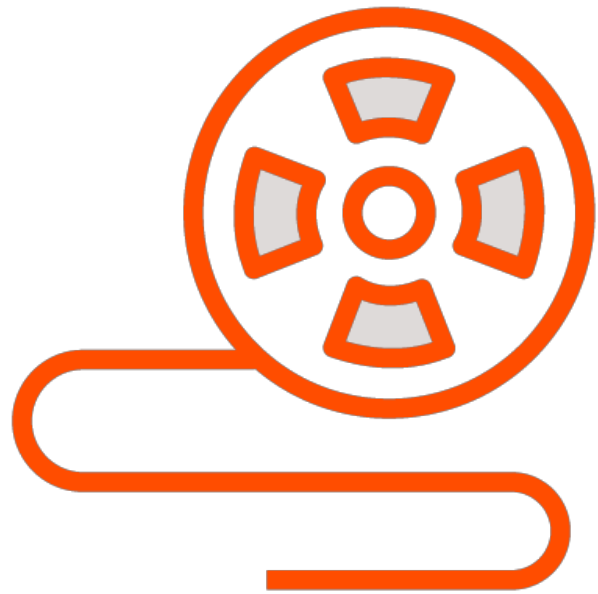**Data**   **SVG**

10 → **0**

0 → **500**

```
d3.scaleLinear()
    .domain([0, 10])
    .range([500, 0])
```

Time Series

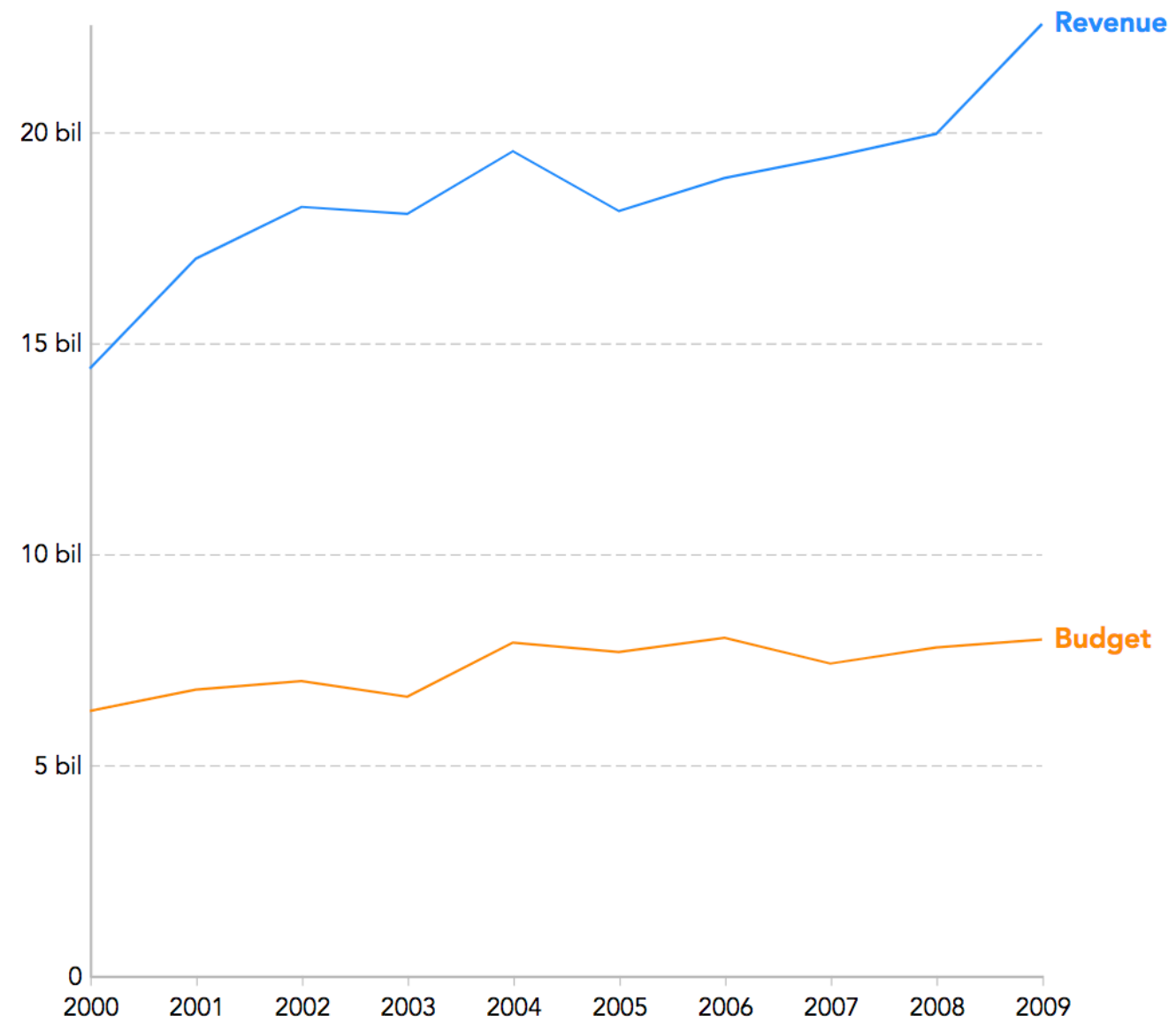Film budgets and revenue

Can we see a trend?

Is film making profitable?
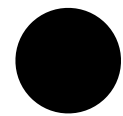
Did profitability change?

Line Chart

Budget and Revenue over time in $US
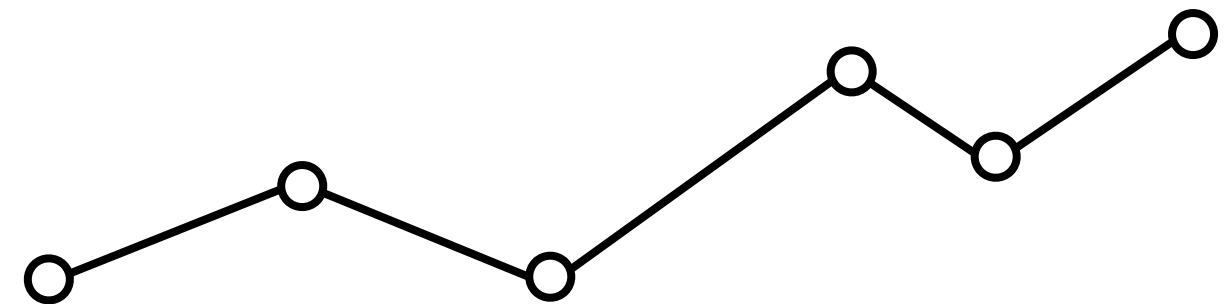Films w/ budget and revenue figures, 2000-2009
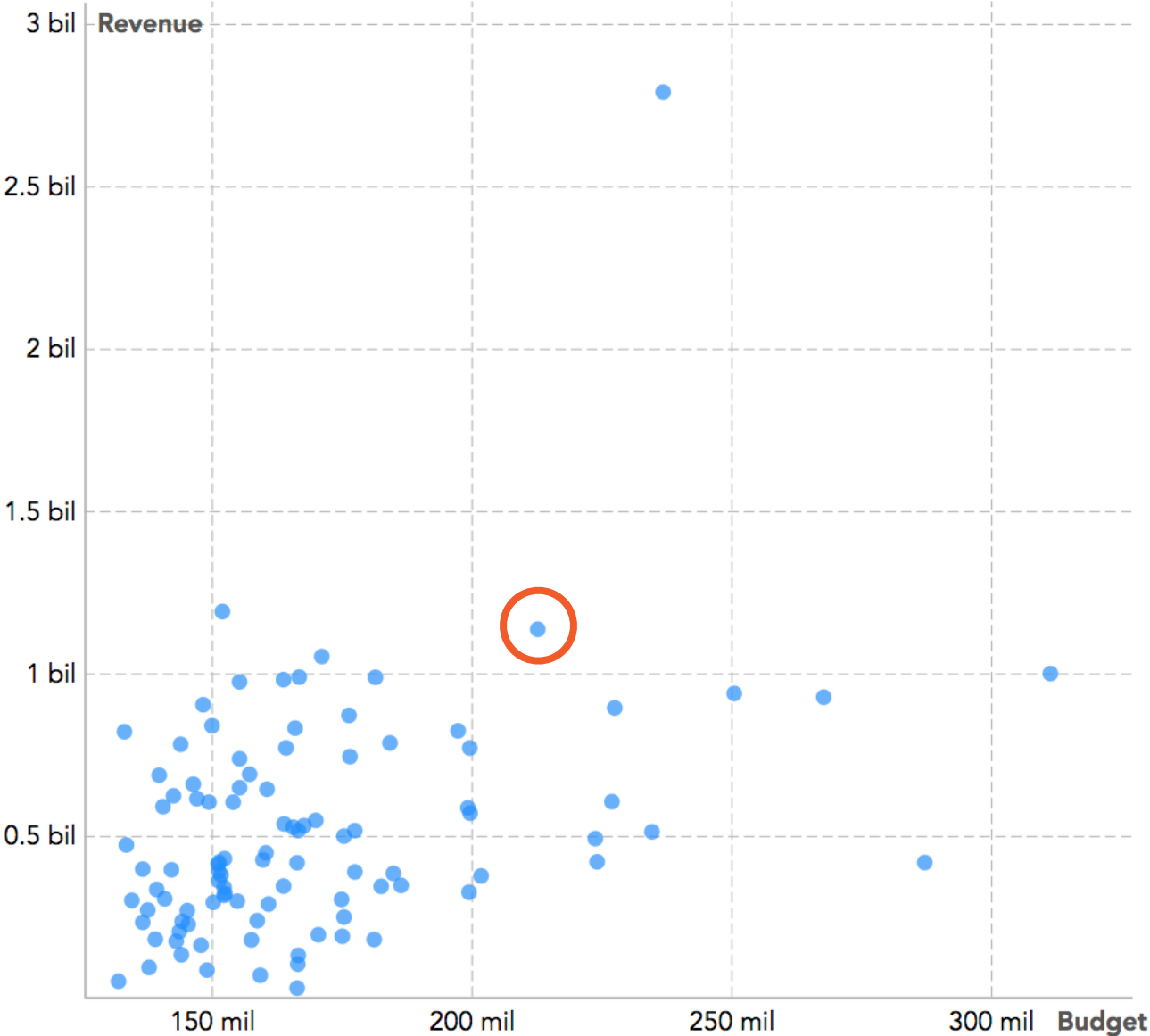
SVG Path Definition

Scatter plot circles
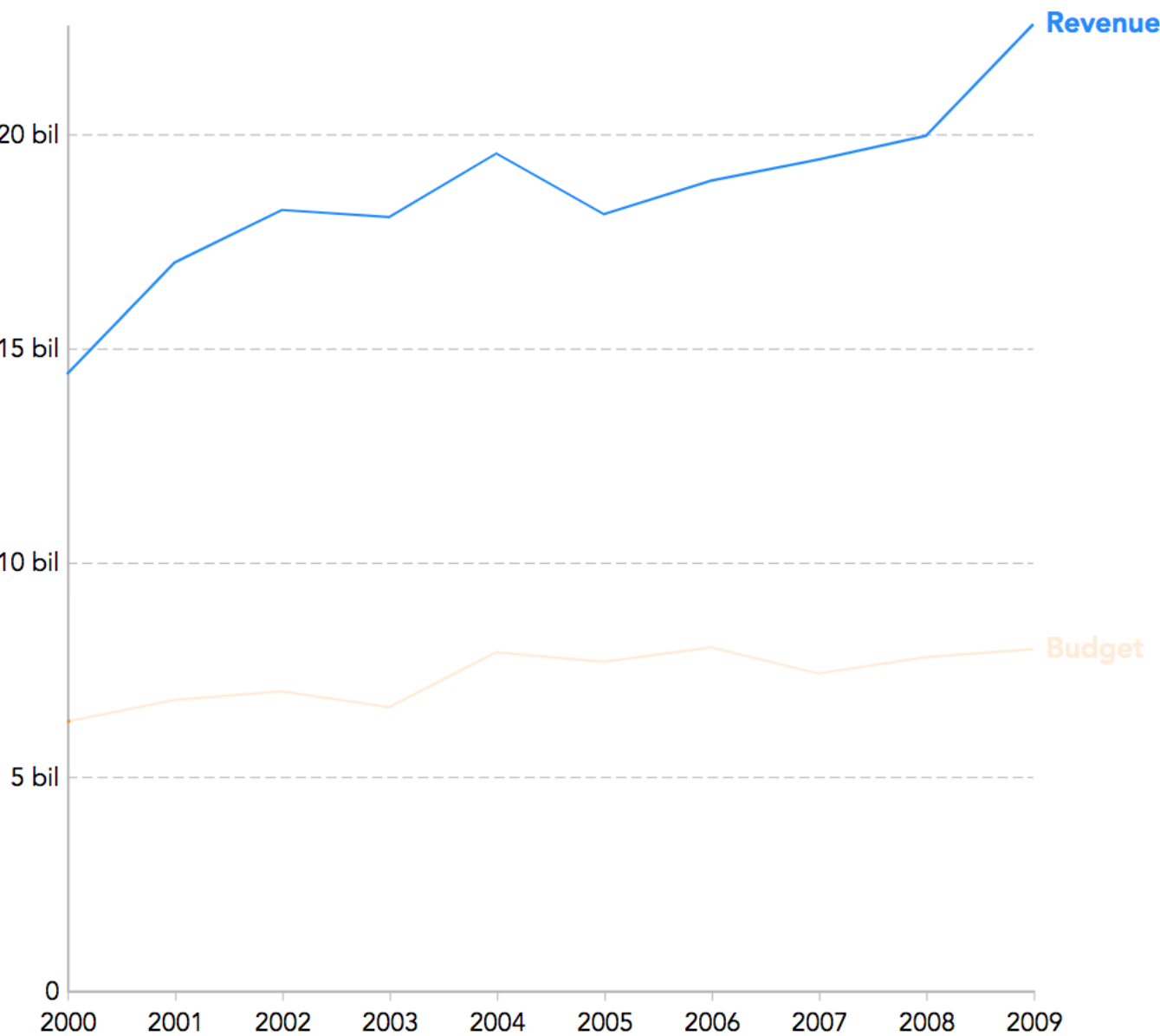

{x: 50, y: 50}

Line chart path


```
{x:  0, y:  0}
{x: 10, y:  5}
{x: 20, y:  0}
{x: 35, y: 15}
{x: 40, y: 10}
{x: 52, y: 17}
```

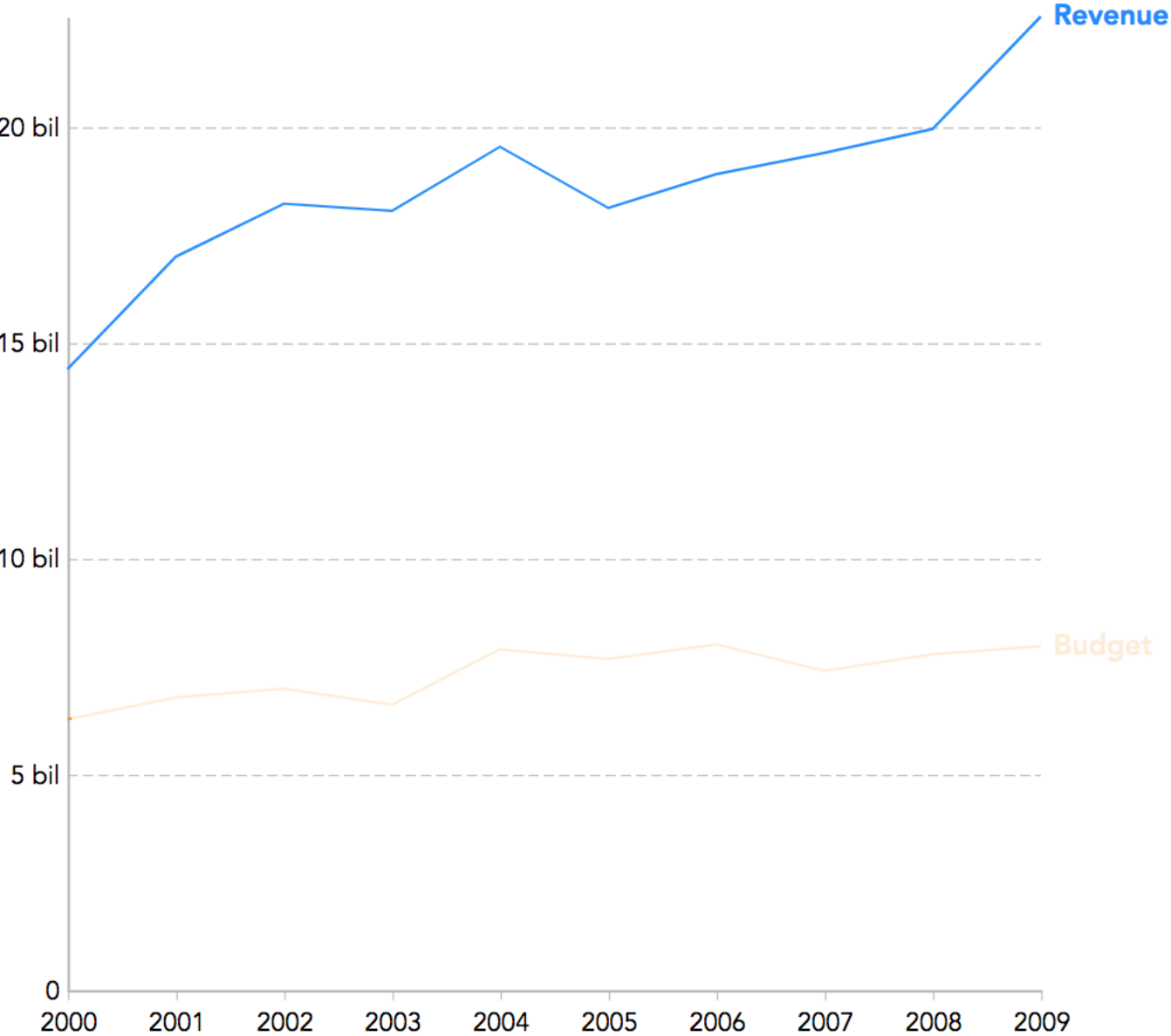# SVG Path Definition

`<circle cx="173" cy="239" r="3"></circle>`
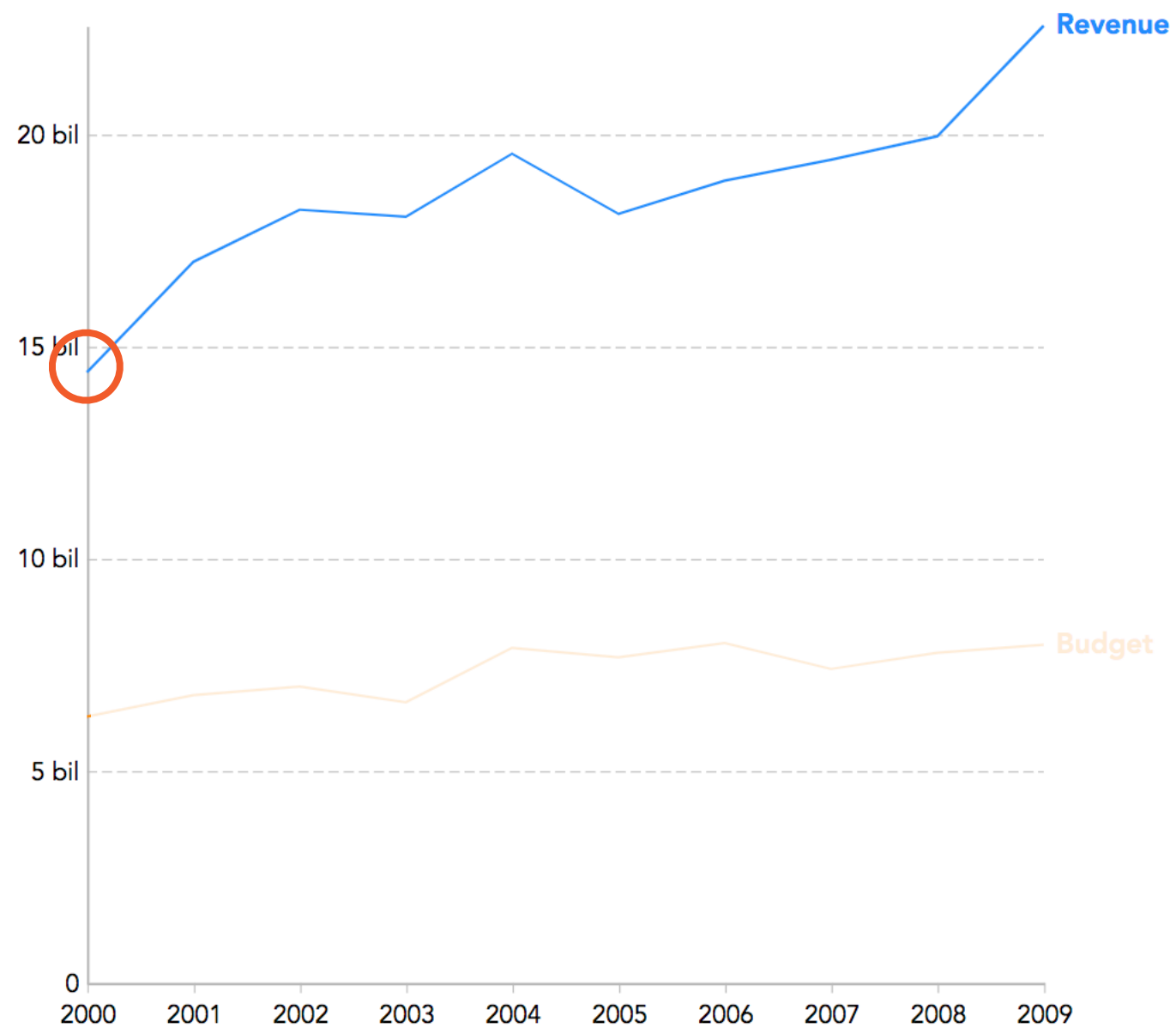
SVG Path Definition


```
<path
d="M0,137.56340278965195L42.299
27007299270S,93.71788347244865L
84.48296836982968,73.0382419361
307L126.66666666666666,75.85376
104220524L168.85036496350367,50
.826142696410614L211.1496350364
9636,74.690363867136L253.333333
33333331,61.47522697478752L295.
517031630170S,53.18449741976661
5L337.70072992700733,43.8882262
52332856L380,0"></path>
```

SVG Path Definition


```
<path
d=" M   0,  137
    L  42,   93
    L  84,   73
    L 126,   75
    L 168,   50
    L 211,   74
    L 253,   61
    L 295,   53
    L 337,   43
    L 380,    0 "></path>
```

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    L   84,   73
    L  126,   75
    L  168,   50
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    L  295,   53
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```
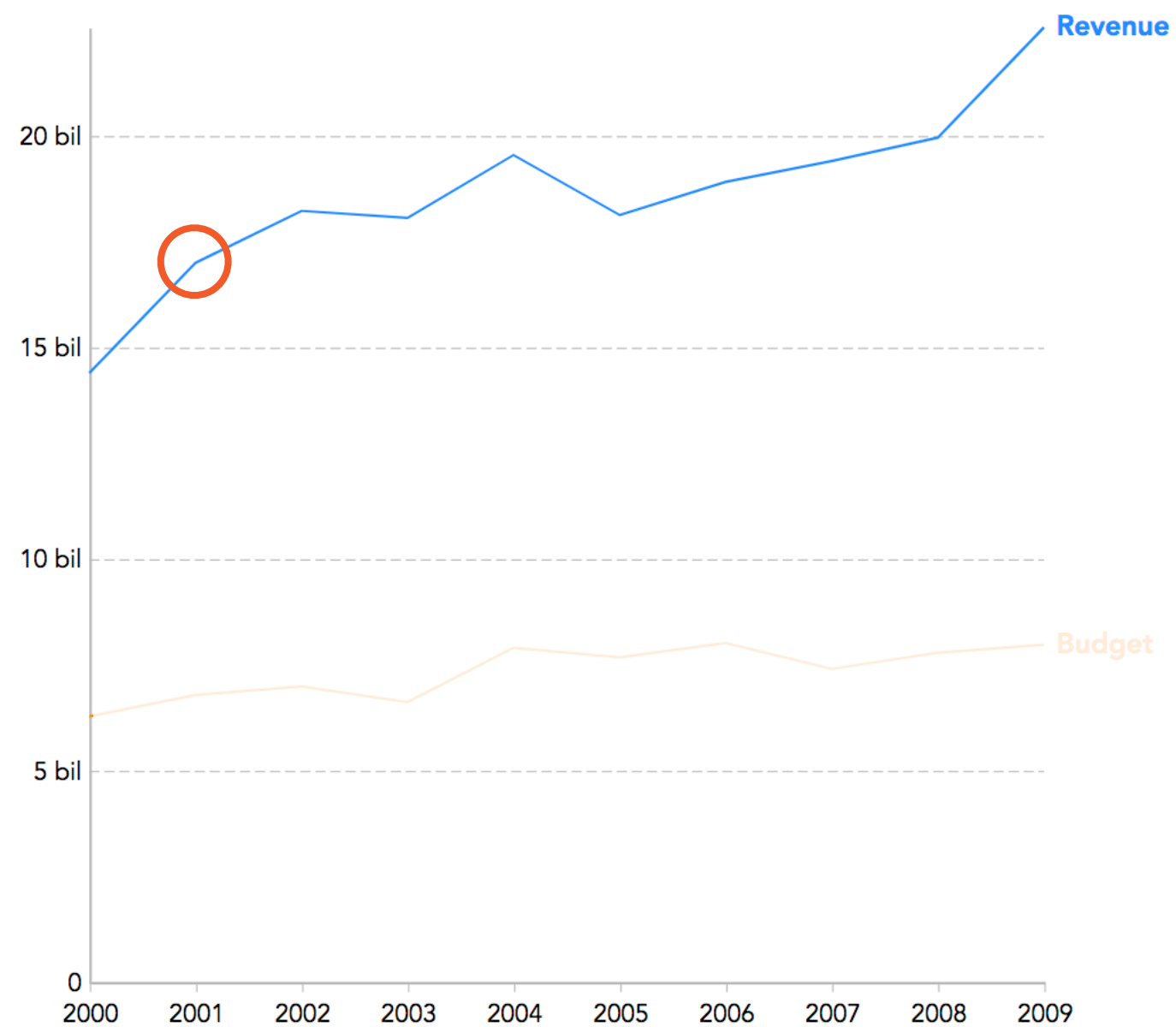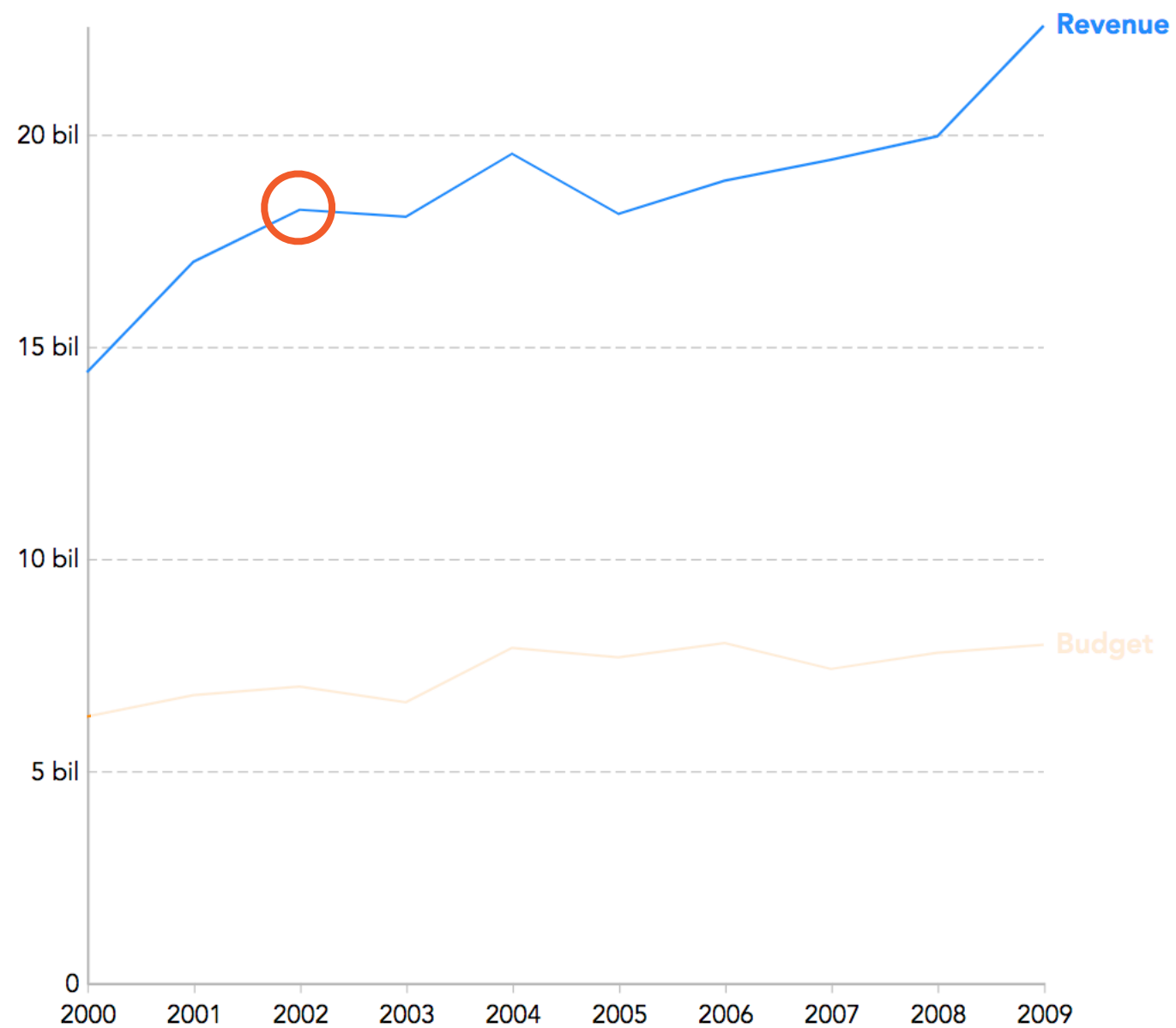
SVG Path Definition
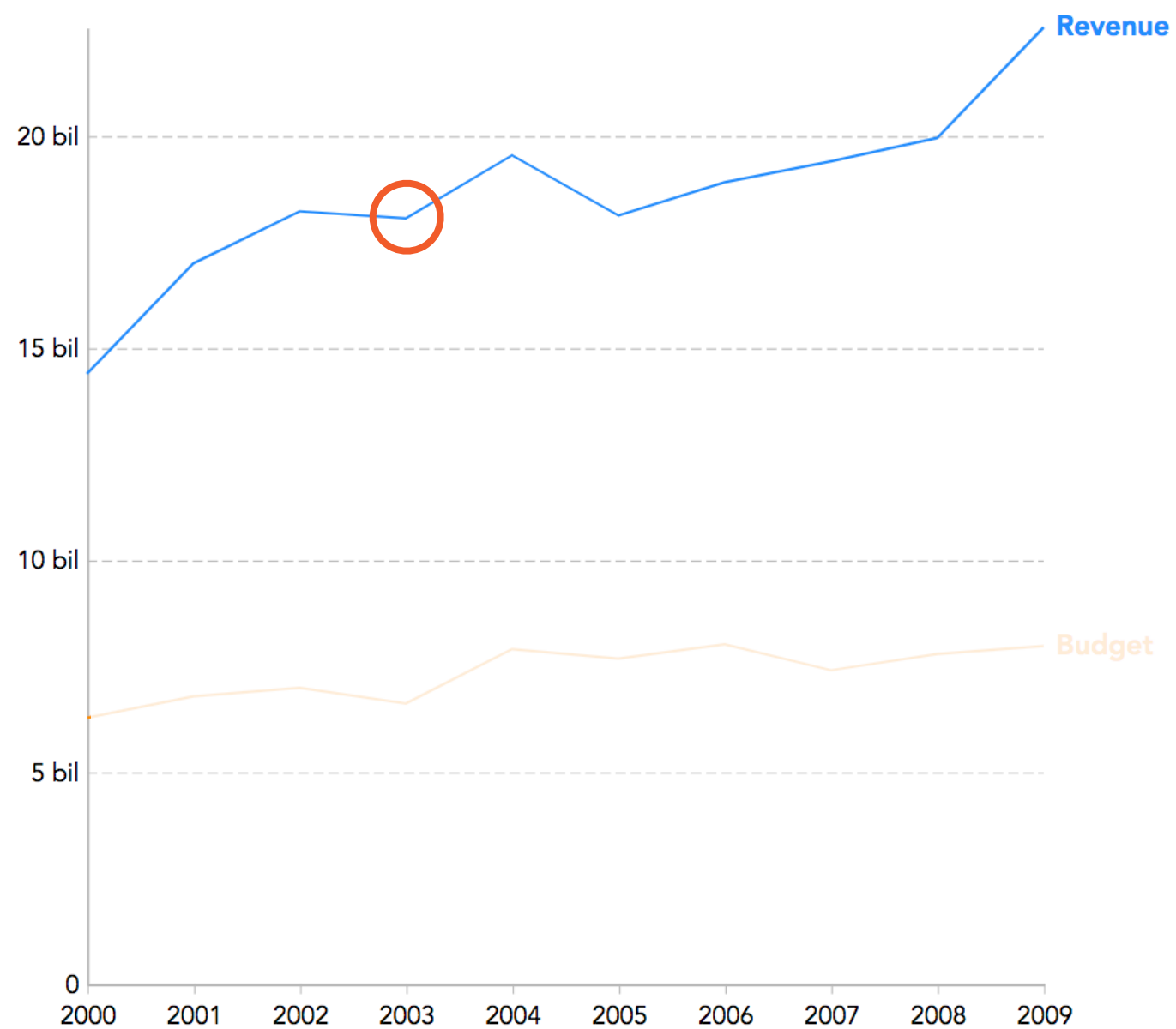


```
<path
d=" M     0,   137
      L    42,    93
      L    84,    73
      L   126,    75
      L   168,    50
      L   211,    74
      L   253,    61
      L   295,    53
      L   337,    43
      L   380,     0 "></path>
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SVG Path Definition


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<path
d=" M   0, 137
     L  42,  93
     L  84,  73
     L 126,  75
     L 168,  50
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     L 253,  61
     L 295,  53
     L 337,  43
     L 380,   0 "></path>
```
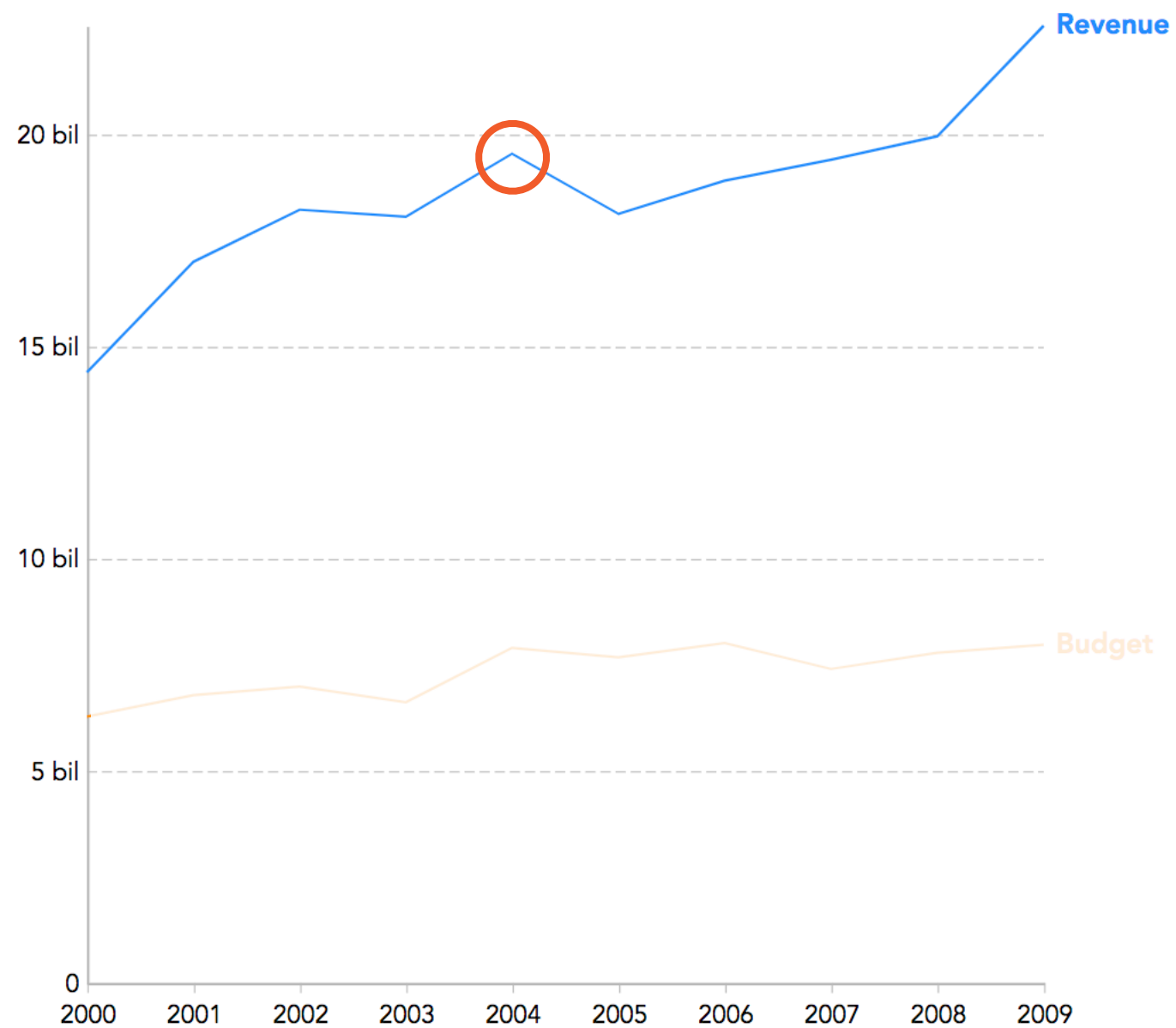
SVG Path Definition


```
<path
d=" M    0,  137
    L   42,   93
    L   84,   73
    L  126,   75
    L  168,   50
    L  211,   74
    L  253,   61
    L  295,   53
    L  337,   43
    L  380,    0 "></path>
```
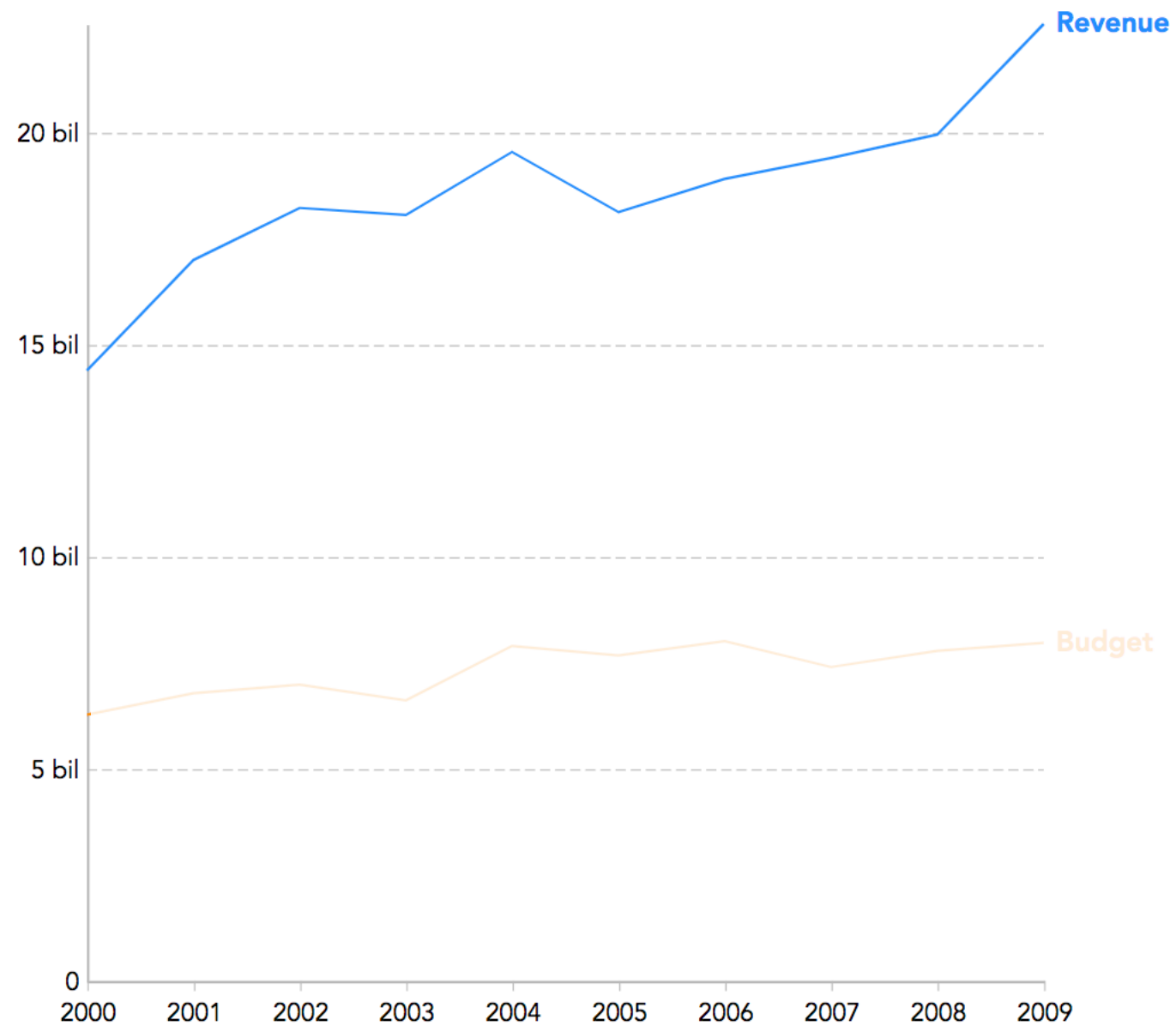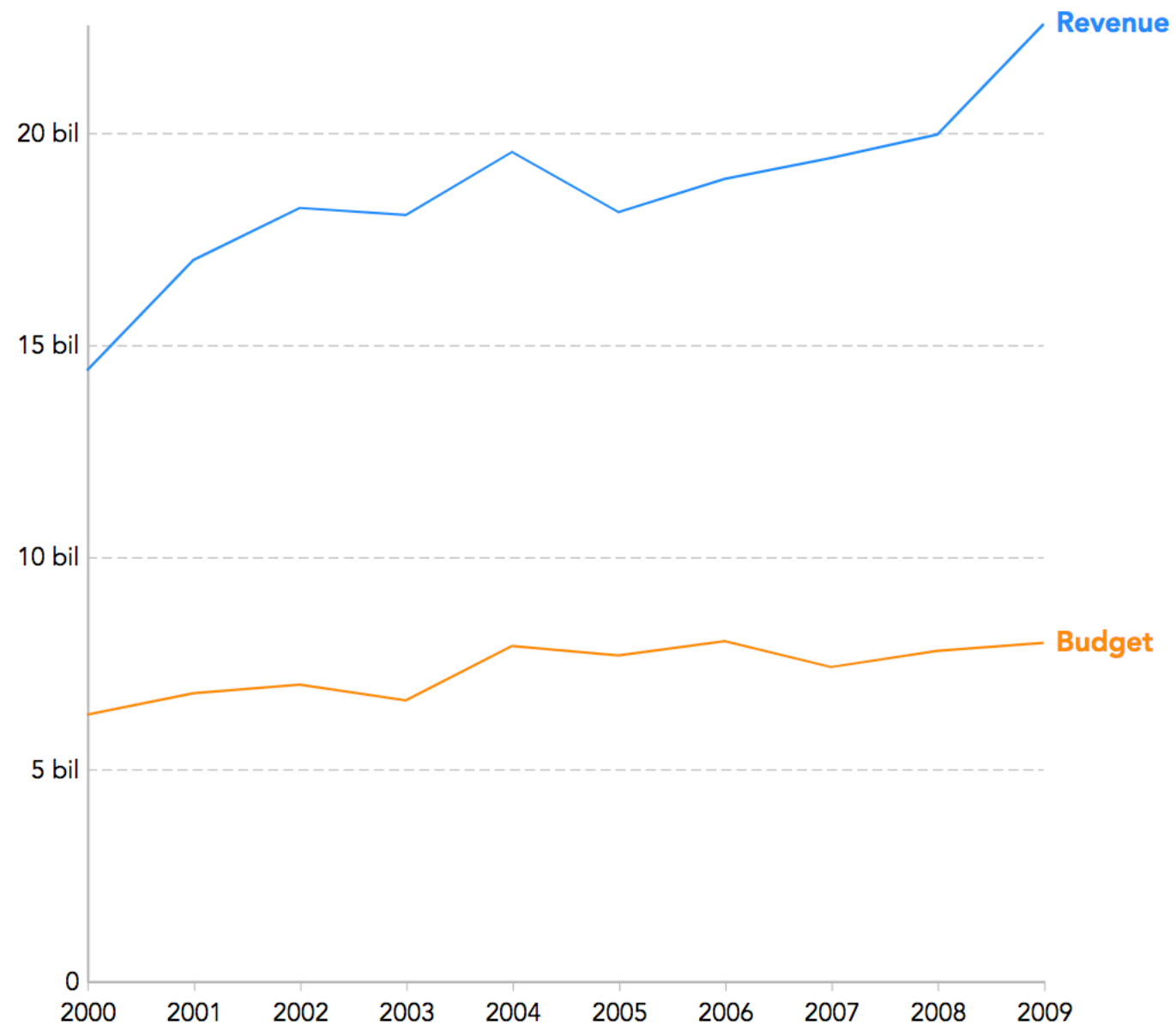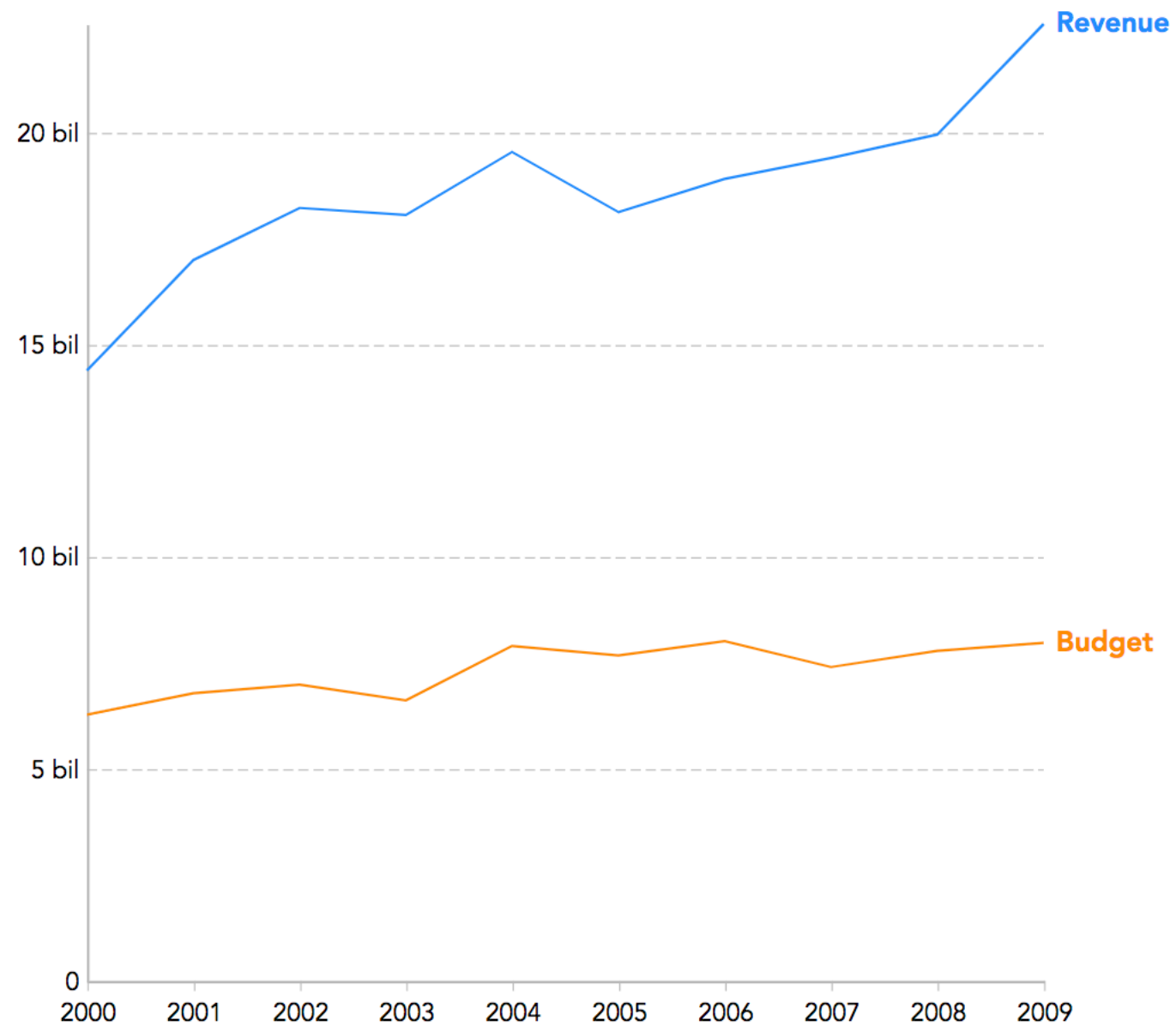
SVG Path Definition


```
d3.line()
    .x(d => d.date)
    .y(d => d.revenue);
```

Line Chart Data


```
[
    { name: "Revenue" },

    { name: "Budget" }
]
```

Line Chart Data


```
[
    { name: "Revenue",
      values: [<value>, <value>, ...] },

    { name: "Budget",
      values: [<value>, <value>, ...] }
]
```

Summary

Scatter plot and line chart

D3 tools for each step

- For data transformation

- Scales

- Axes

- Line generator

Low level concept

- Access to graphical primitives

- Allows flexibility