

Problem Set #4

Answer Key

1. $MV = PY$

$$\% \Delta M + \% \Delta V = \% \Delta P + \% \Delta Y$$

a. $\% \Delta Y = 3.5$

$$\% \Delta V = 0 \Rightarrow \% \Delta M + 0 = \% \Delta P + 3.5$$

$$\% \Delta P = \% \Delta M - 3.5$$

b.

Period	M	V	$\% \Delta V$	Y	$\% \Delta Y$
1	100	2	-	200	-
2	103.5	2	0	207	3.5
3	98.33	2	0	214.245	3.5
4	104.72	2	0	221.744	3.5

$$214.245 = 207 \times 1.035$$

$$221.744 = 214.245 \times 1.035$$

Period	M	$\% \Delta M$	P	$\% \Delta P$	Y	$\% \Delta Y$
1	100	-	1	-	200	-
2	103.5	3.5	1	0	207	3.5
3	98.33	-5	.915	-8.5	214.245	3.5
4	104.72	6.5	.94245	3	221.744	3.5

$$\textcircled{\% \Delta M} \quad -5 = \frac{98.33 - 103.5}{103.5} \times 100$$

$$6.5 = \frac{104.72 - 98.33}{98.33} \times 100$$

$$0 = 3.5 - 3.5 \quad \textcircled{\% \Delta P}$$

$$-8.5 = -5 - 3.5$$

$$3 = 6.5 - 3.5$$

$$\textcircled{P} \quad 1 = 1 \times (1.00), \quad .915 = 1 \times (1.00 - .085), \quad .94245 = .915 \times (1.03)$$

d.

<u>Period</u>	<u>M</u>	<u>V</u>	<u>P</u>	<u>Y</u>
1	100	2	1	200
2	103.5	2	1	207
3	98.33	2	.9179	214.245
4	104.72	2	.9445	221.744

$$P = \frac{M \times V}{Y}$$

$$\frac{100 \times 2}{200} = 1$$

$$\frac{103.5 \times 2}{207} = 1$$

$$\frac{98.33 \times 2}{214.245} = .917921$$

$$\frac{104.72 \times 2}{221.744} = .944513$$

2. $r = i - \pi$

a.

<u>r</u>	<u>i</u>	<u>π</u>
6	10	4
2	10	8
-2	10	12
4	7	3
-2	12	14
3	8	5
-2	7	9

b. $\% \Delta r = 3.5, \% \Delta v = 0$

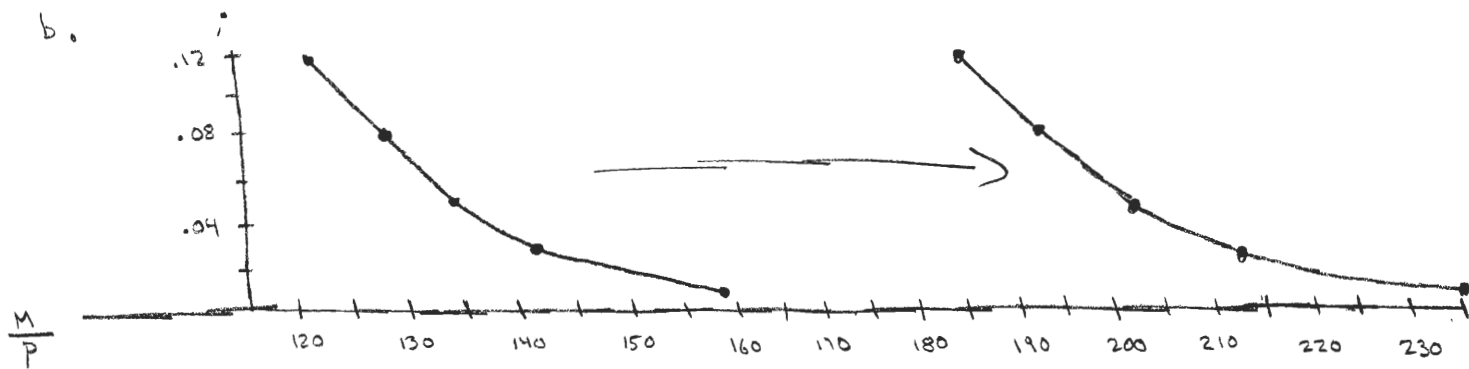
$\% \Delta P = \% \Delta M - 3.5, \% \Delta P = \pi$

<u>$\% \Delta r$</u>	<u>$\% \Delta M$</u>	<u>π</u>	<u>r</u>	<u>i</u>
0	3.5	0	3	3
1	4.5	1	3	4
2	5.5	2	3	5
-1	2.5	-1	3	2
5	8.5	5	3	8

3. $\left(\frac{M}{P}\right)^d = L(i, Y)$

a. $\left(\frac{M}{P}\right)^d = \left(\frac{1}{i}\right)^{1/10} \times Y$

i	$\left(\frac{1}{i}\right)^{1/10}$	Y	$\left(\frac{M}{P}\right)^d$
.12	1.236	100	123.6
.08	1.287	100	128.7
.05	1.349	100	134.9
.03	1.42	100	142.0
.01	1.585	100	158.5



c.

i	$\left(\frac{1}{i}\right)^{1/10}$	Y	$\left(\frac{M}{P}\right)^d$
.12	1.236	150	185.4
.08	1.287	150	193.05
.05	1.349	150	202.35
.03	1.42	150	213
.01	1.585	150	237.75

* The money demand curve shifts to the right, indicating a higher money demand for any given interest rate.