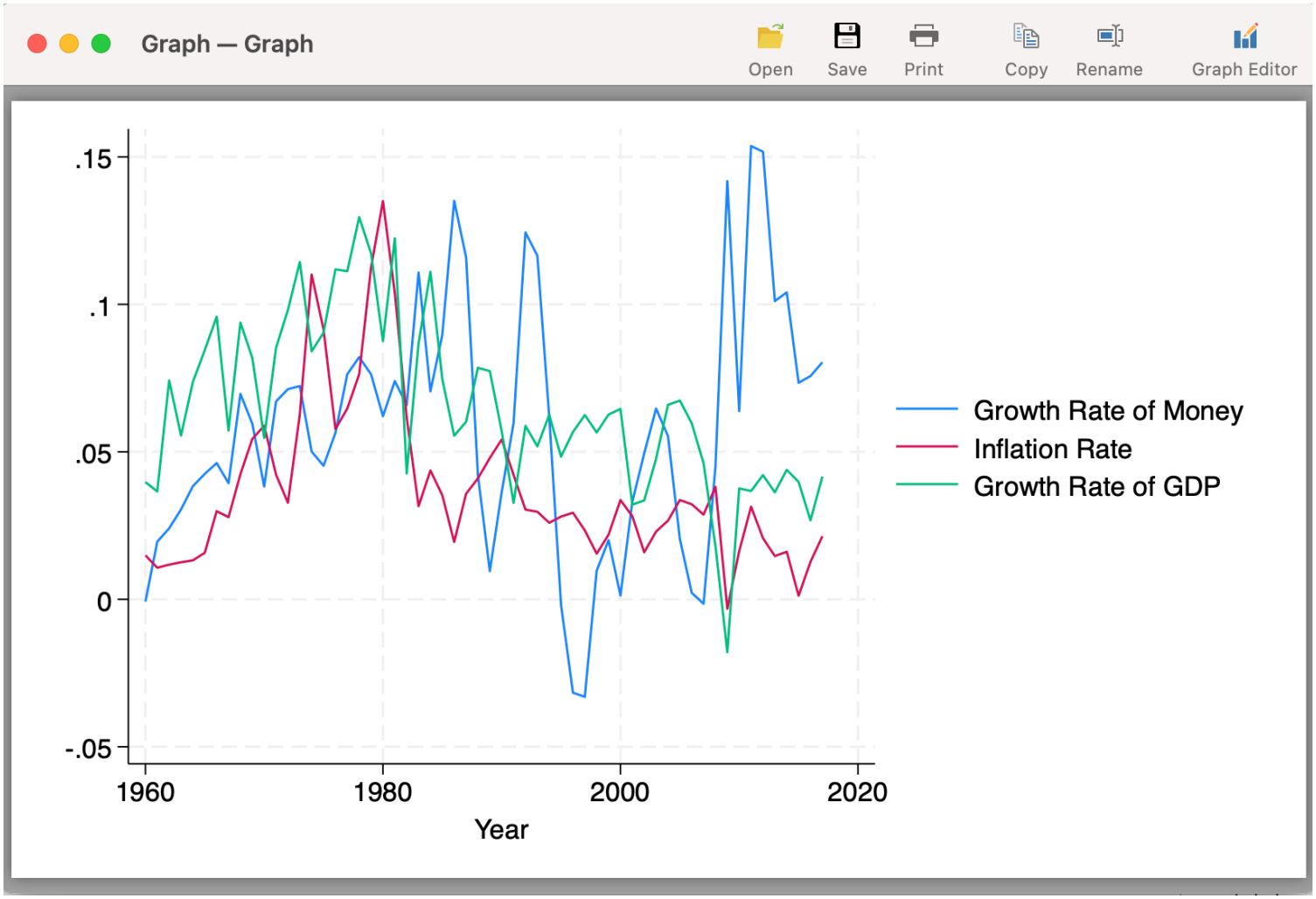
Question 1

```
. summarize gm pi ggdp
```

Variable	Obs	Mean	Std. dev.	Min	Max
gm	58	.0578921	.0420679	-.0330527	.1536891
pi	58	.0377583	.0280562	-.0032036	.1350172
ggdp	58	.0647945	.0288735	-.0179376	.1295848

```
. line gm pi ggdp year
```



```
. ttest gm = 0.06

One-sample t test

Variable |     Obs        Mean    Std. err.   Std. dev.   [95% conf. interval]
---------+--------------------------------------------------------------------
      gm |      58    .0578921    .0055238    .0420679    .0468309    .0689533

    mean = mean(gm)                                           t =  -0.3816
H0: mean = 0.06                                 Degrees of freedom =       57

   Ha: mean < 0.06               Ha: mean != 0.06                 Ha: mean > 0.06
 Pr(T < t) = 0.3521         Pr(|T| > |t|) = 0.7042          Pr(T > t) = 0.6479

.
```

0.7042 > 0.05, we fail to reject H_0.

Since the p-value (0.7042) is greater than α = 0.05, we fail to reject the null hypothesis.

At the 95% confidence level, there is insufficient evidence to conclude that the mean growth rate of money is different from 0.06.

```
. ttest gm = 0.04

One-sample t test

Variable |     Obs        Mean    Std. err.   Std. dev.   [95% conf. interval]
---------+--------------------------------------------------------------------
      gm |      58    .0578921    .0055238    .0420679    .0468309    .0689533

    mean = mean(gm)                                           t =   3.2391
H0: mean = 0.04                                 Degrees of freedom =       57

   Ha: mean < 0.04               Ha: mean != 0.04                 Ha: mean > 0.04
 Pr(T < t) = 0.9990         Pr(|T| > |t|) = 0.0020          Pr(T > t) = 0.0010

.
```

0.0020 < 0.05

Since the p-value (0.0020) is less than α = 0.05, we reject the null hypothesis.

At the 95% confidence level, there is sufficient evidence to conclude that the mean growth rate of money is different from 0.04.

```
. ttest pi = 0.02

One-sample t test
```

Variable	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]
pi	58	.0377583	.003684	.0280562	.0303813 .0451353

```
    mean = mean(pi)                                   t =   4.8205
H0: mean = 0.02                   Degrees of freedom =       57

   Ha: mean < 0.02               Ha: mean != 0.02                Ha: mean > 0.02
 Pr(T < t) = 1.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 0.0000

.
```

0.0000 < 0.05

we reject the null hypothesis.

At the 95% confidence level, there is sufficient evidence to conclude that the mean inflation rate is different from 0.02.

```
. ttest pi = 0.02, level(99)

One-sample t test
```

Variable	Obs	Mean	Std. err.	Std. dev.	[99% conf. interval]
pi	58	.0377583	.003684	.0280562	.0279411 .0475756

```
    mean = mean(pi)                                   t =   4.8205
H0: mean = 0.02                   Degrees of freedom =       57

   Ha: mean < 0.02               Ha: mean != 0.02                Ha: mean > 0.02
 Pr(T < t) = 1.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 0.0000
```

0.0000 < 0.01

Since the p-value (0.0000) is less than $\alpha = 0.01$, reject H_0.

At the 99% confidence level, there is sufficient evidence to conclude that the mean inflation rate is different from 0.02.

Question 2

```
. reg pi gm if year >= 1984 & year <= 2017
```

Source	SS	df	MS	Number of obs	=	34
				F(1, 32)	=	2.84
Model	.000400583	1	.000400583	Prob > F	=	0.1019
Residual	.0045195	32	.000141234	R-squared	=	0.0814
				Adj R-squared	=	0.0527
Total	.004920084	33	.000149093	Root MSE	=	.01188

pi	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
gm	-.067783	.040248	-1.68	0.102	-.1497655	.0141995
_cons	.0309878	.0031605	9.80	0.000	.0245501	.0374256

Inflation Rate = 0.0309878 − 0.067783 ×(Growth Rate of Money)

Part B:

t = -1.68

P>|t| = 0.102

0.102 > 0.05

At the 95% confidence level, we fail to reject null hypothesis. There is insufficient evidence to conclude that the coefficient of the growth rate of money is different from zero.

```
. test gm = -0.2

 ( 1)  gm = -.2

       F(  1,    32) =   10.79
            Prob > F =    0.0025
```

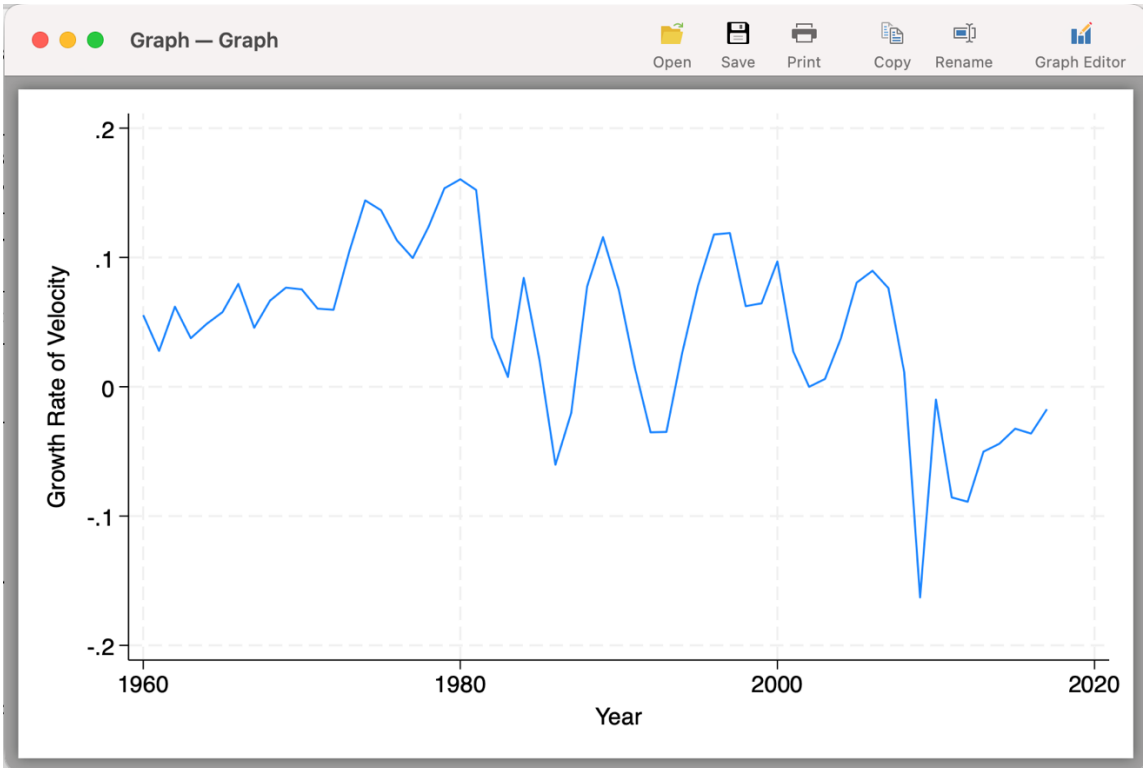
Since the p-value (0.0025) is less than α = 0.05, we reject the null hypothesis.

At the 95% confidence level, there is sufficient evidence to conclude that the coefficient of the growth rate of money is different from -0.2.

```
. generate gv = ggdp + pi - gm

. label variable gv "Growth Rate of Velocity"

  . line gv year
```



```
. ttest gv = 0.05

One-sample t test
```

Variable	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]
gv	58	.0446607	.0088047	.0670546	.0270296 .0622918

```
    mean = mean(gv)                                     t =  -0.6064
H0: mean = 0.05                             Degrees of freedom =       57

   Ha: mean < 0.05               Ha: mean != 0.05                Ha: mean > 0.05
 Pr(T < t) = 0.2733         Pr(|T| > |t|) = 0.5466          Pr(T > t) = 0.7267

.
```

Pr(|T| > |t|) = 0.5466

0.5466 > 0.05

Since the p-value (0.5466) is greater than α = 0.05, we fail to reject the null hypothesis.

At the 95% confidence level, there is insufficient evidence to conclude that the mean growth rate of velocity is different from 0.05.

```
. line gm pi ggdp gv year
```

