

This is the take-home wrap-up on Lecture 02

Formal testing for stationarity

and

Stationary transformations

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It is not graded, and you may stay anonymous if you wish

It's gonna be **really helpful for the quizzes** next week ;)

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*Best of luck!*

You're running some pretty usual and routine statistical test (a conventional criterion type). You got P-value about 0.00025. What's your conclusion gonna be?

✓ Reject the null	<div></div>	0%	0 votes
Can't reject the null	<div></div>	0%	0 votes
Not enough data	<div></div>	0%	0 votes
Requires essential judgment	<div></div>	0%	0 votes

You're running some pretty usual and routine statistical test (a conventional criterion type). You got statistics value about 1.78. What's your conclusion gonna be?

Reject the null	<div></div>	0%	0 votes
Can't reject the null	<div></div>	0%	0 votes
✓ Not enough data	<div></div>	0%	0 votes
Requires essential judgment	<div></div>	0%	0 votes

You're running a one-sample two-sided z-test. You got statistics value about -3.25. What's your conclusion gonna be?

✓ Reject the null	<div></div>	0%	0 votes
Can't reject the null	<div></div>	0%	0 votes
Not enough data	<div></div>	0%	0 votes
Requires essential judgment	<div></div>	0%	0 votes

You decided your TS data required formal stationarity test. Which would you choose?

ADF alone is enough		0%	0 votes
KPSS alone is enough		0%	0 votes
✓ Both would be good		0%	0 votes
Whatever. Just look at the graph		0%	0 votes

ADF and KPSS are both stationarity tests.

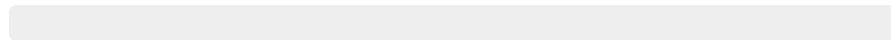
✓ TRUE



0%

0 votes

FALSE



0%

0 votes

7

ADF and KPSS are both unit root tests.

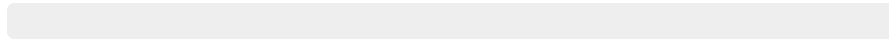
TRUE



0%

0 votes

✓ FALSE



0%

0 votes

Running ADF, you got P-value 0.08. What's your next step?

Conclude that the TS is stationary.	<div></div>	0%	0 votes
Conclude that the TS is NOT stationary.	<div></div>	0%	0 votes
✓ Run KPSS to double-check.	<div></div>	0%	0 votes
Take the diffs and repeat.	<div></div>	0%	0 votes



You're sure that your TS is NOT stationary, but you run the tests anyway. You got ADF P-value  $>0.1$ , and KPSS P-value  $<0.01$ . What's your conclusion?

✓ The TS is NOT stationary, indeed.	<div></div>	0%	0 votes
Tests say it is stationary. Something is wrong with my judgment.	<div></div>	0%	0 votes
Tests results are mixed. I have to follow intuition.	<div></div>	0%	0 votes

You're thinking that your TS MIGHT BE stationary, but you're not sure and run the tests to double-check. You got ADF P-value 0.09, and KPSS P-value  $>0.1$ . What's your conclusion?

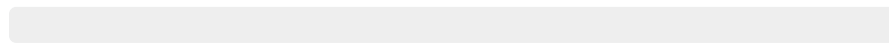
✓ The TS might be close to unit root, but I'll follow intuition and think it is stationary.



0%

0 votes

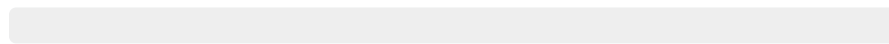
Tests say it is stationary. I say it is stationary. It must be stationary.



0%

0 votes

Tests say it's NOT stationary. Something must be wrong with my judgment.



0%

0 votes

Many of raw economic time series are non-stationary.

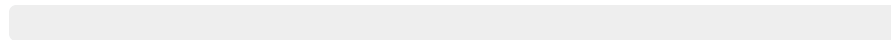
✓ TRUE



0%

0 votes

FALSE



0%

0 votes

We can transform raw data and get stationary TS to work with.

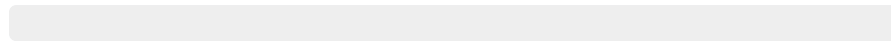
✓ TRUE



0%

0 votes

FALSE



0%

0 votes

Which is an example of a transformation we can apply to get stationary TS?

taking logs	<div></div>	0%	0 votes
taking 1-period differences	<div></div>	0%	0 votes
taking 1-period growth rates	<div></div>	0%	0 votes
all of them	<div></div>	0%	0 votes
✓ all of them, but logs	<div></div>	0%	0 votes

First differences always "kill" non-stationarity in data.

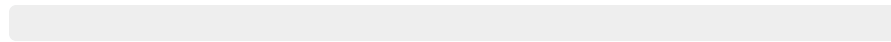
TRUE



0%

0 votes

✓ FALSE

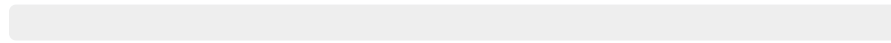


0%

0 votes

Differences of order higher than 2 aren't ever used.

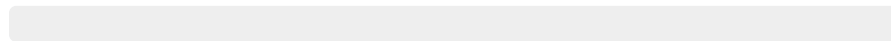
Definitely TRUE



0%

0 votes

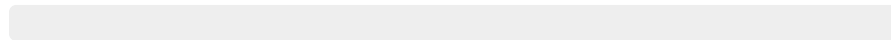
✓ At least in econometrics, they almost aren't.



0%

0 votes

They are! Why not?



0%

0 votes

Percentage change and log-differences are exactly the same things.

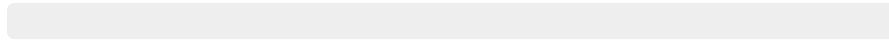
TRUE



0%

0 votes

✓ FALSE



0%

0 votes



Over 10 periods, some TS first diffs are +0.25 on average. Thus, over the whole period, the initial TS ...

grew by 0.25		0%	0 votes
grew by 25%		0%	0 votes
✓ grew by 2.5		0%	0 votes
Not enough data.		0%	0 votes

Over 10 periods, some TS log-diffs are -0.003 on average. Thus, over the whole period, the initial TS ...

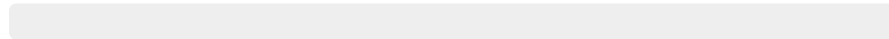
declined by about 0.3% each period.



0%

0 votes

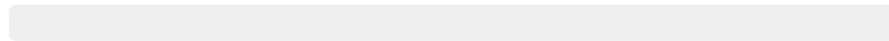
✓ declined by about 3% overall.



0%

0 votes

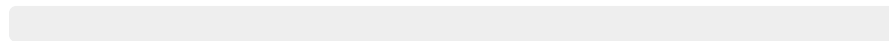
declined most of the periods, but not overall.



0%

0 votes

Not enough data.



0%

0 votes

Over 5 periods, some TS log-diffs are all positive and are 0.12 on average. Thus, over this whole period, the initial TS ...

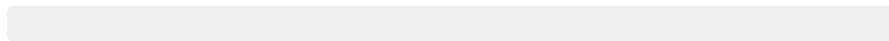
grew by about 12% each period.



0%

0 votes

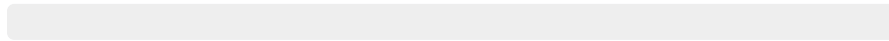
grew all the time, and by about 60% overall.



0%

0 votes

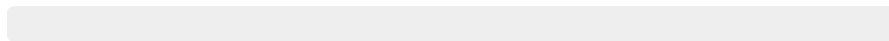
✓ grew all the time, and by more than 60% overall.



0%

0 votes

Not enough data.



0%

0 votes