ASSESSING THE IMPACTS OF ECONOMIC FACTORS ON FUNDING FOR TECH STARTUPS

SDS 291 Multiple Regression | Tuesday April 26, 2022

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BACKGROUND

Research Question

*Is the **funding amount** (in dollars) that a startup receives affected by the **GDP per capita of the country** they are based in, and is funding moderated by whether the startup is in the **Series C funding stage or not**?*

Hypothesis

PARALLEL SLOPES

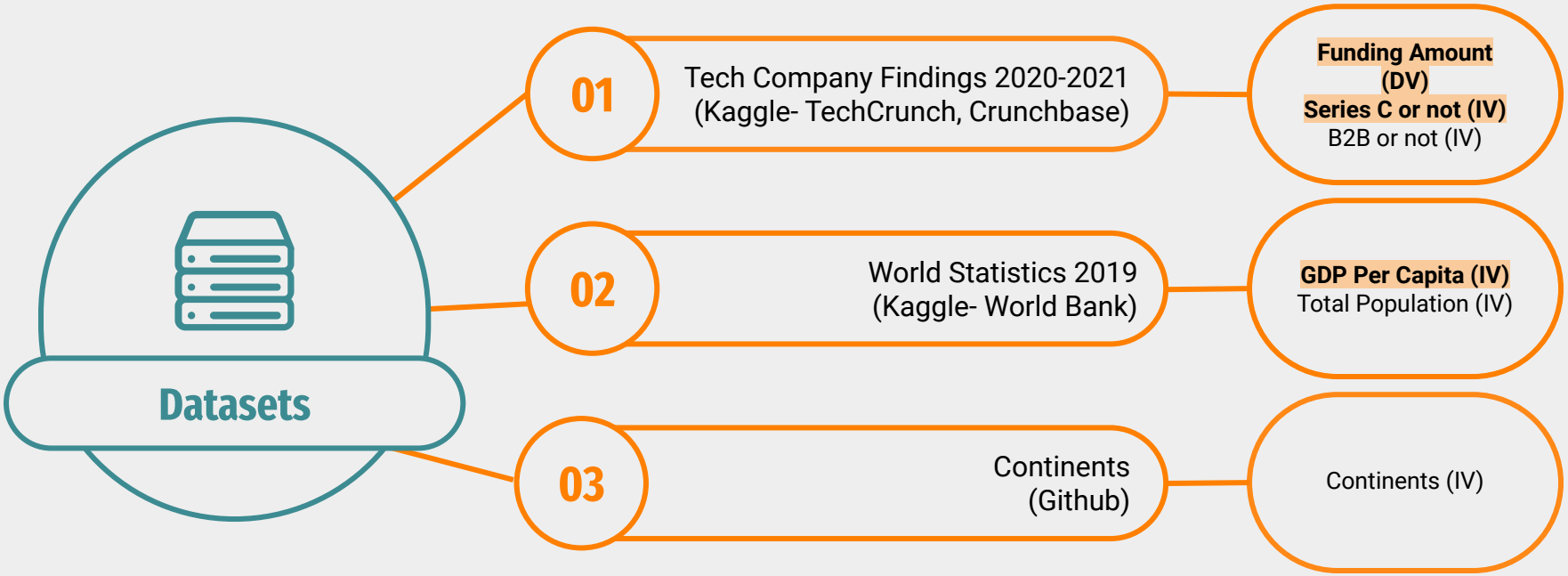
We expect as the GDP per capita, of the country the startup is based in, increases, so does the funding amount.

MODERATING EFFECTS

We expect that GDP per capita of the country the company is based in and funding amount will increase significantly if the startup is in the Series C funding stage.

DATA & METHODS

Datasets and Variables Used



Method

Modeling

- Parallel Slopes Model
- Interaction Model
- 5 Variables - gdp-per capita, total population, Series C or not, Continent, isB2B

Multicollinearity

- VIF Test
- Excluded gdp-per capita*Series C or not interaction term
- Excluded Continent variable

3 Models

- Interaction Model (Model 1)
- Subset Parallel Slopes Model (Model 2)
- Full Parallel Slopes Model (Model 3)

Anova Test

- Conducted due to conflicting AIC & BIC values
- Model 1 vs. Model 3


FINDINGS

Findings - Goodness of Fit

Table 1: Predicting Funding Amount received by a Tech Company

	Dependent variable:		
	Funding Amount (US$)		
	(1)	(2)	(3)
GDP per Capita (US$, in thousands)	0.005*	0.012***	0.005*
	(0.003)	(0.001)	(0.003)
Company in Series C	1.871***	1.534***	1.533***
	(0.248)	(0.080)	(0.079)
Company not a B2B software	0.290***	0.293***	0.290***
	(0.070)	(0.071)	(0.070)
Total population (in ten thousands)	0.00000**	0.00001***	0.00000**
	(0.00000)	(0.00000)	(0.00000)
Company in Asia	1.451***		1.464***
	(0.299)		(0.298)
Company in Europe	1.386***		1.396***
	(0.296)		(0.296)
Company in North Africa	1.774***		1.775***
	(0.324)		(0.324)
Company in Oceania	1.453***		1.464***
	(0.365)		(0.365)
Company in South America	2.521***		2.518***
	(0.355)		(0.355)
Interaction term - Series C X GDP per capita	−0.006		
	(0.004)		
Constant	14.126***	15.322***	14.143***
	(0.280)	(0.114)	(0.280)
Observations	3,395	3,395	3,395
Adjusted R^2	0.142	0.126	0.142
Akaike Inf. Crit.	12,633.870	12,688.900	12,633.940
Bayesian Inf. Crit.	12,707.430	12,725.680	12,701.370
Note:			*p<0.1; **p<0.05; ***p<0.01

The p-value is greater than 0 → fail to reject the null hypothesis → Model 3 is chosen

Anova Test

	Model 1	Model 2	Model 3
Adjusted R^2 (Largest)	✓	✗	✓
AIC (Smallest)	✓	✗	✗
BIC (Smallest)	✗	✗	✓

Findings - Significant Results

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Our key variables are statistically significant.

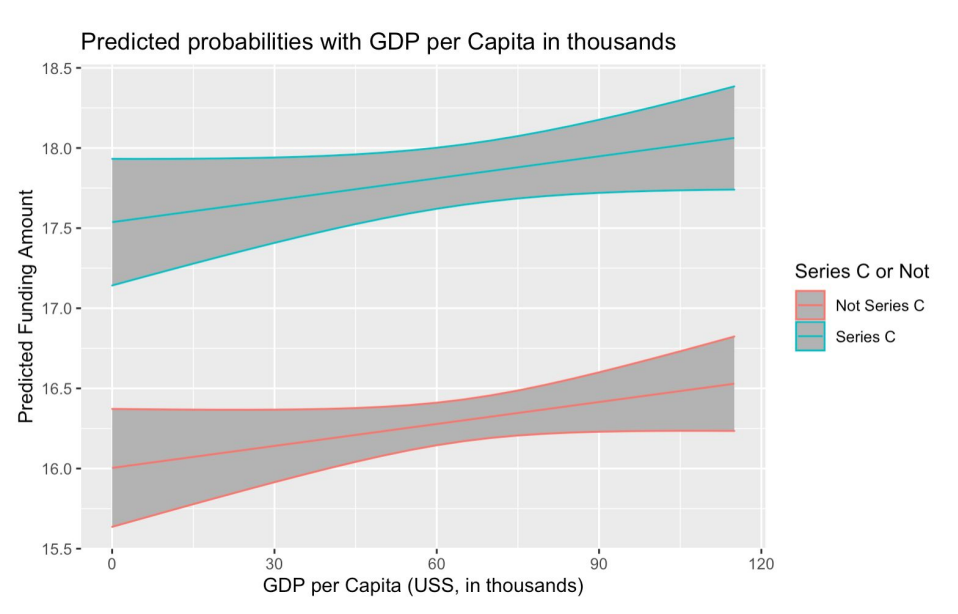
Findings - Hypothesis

PARALLEL EFFECTS

We expect as the GDP per capita, of the country the startup is based in, increases, so does the funding amount.

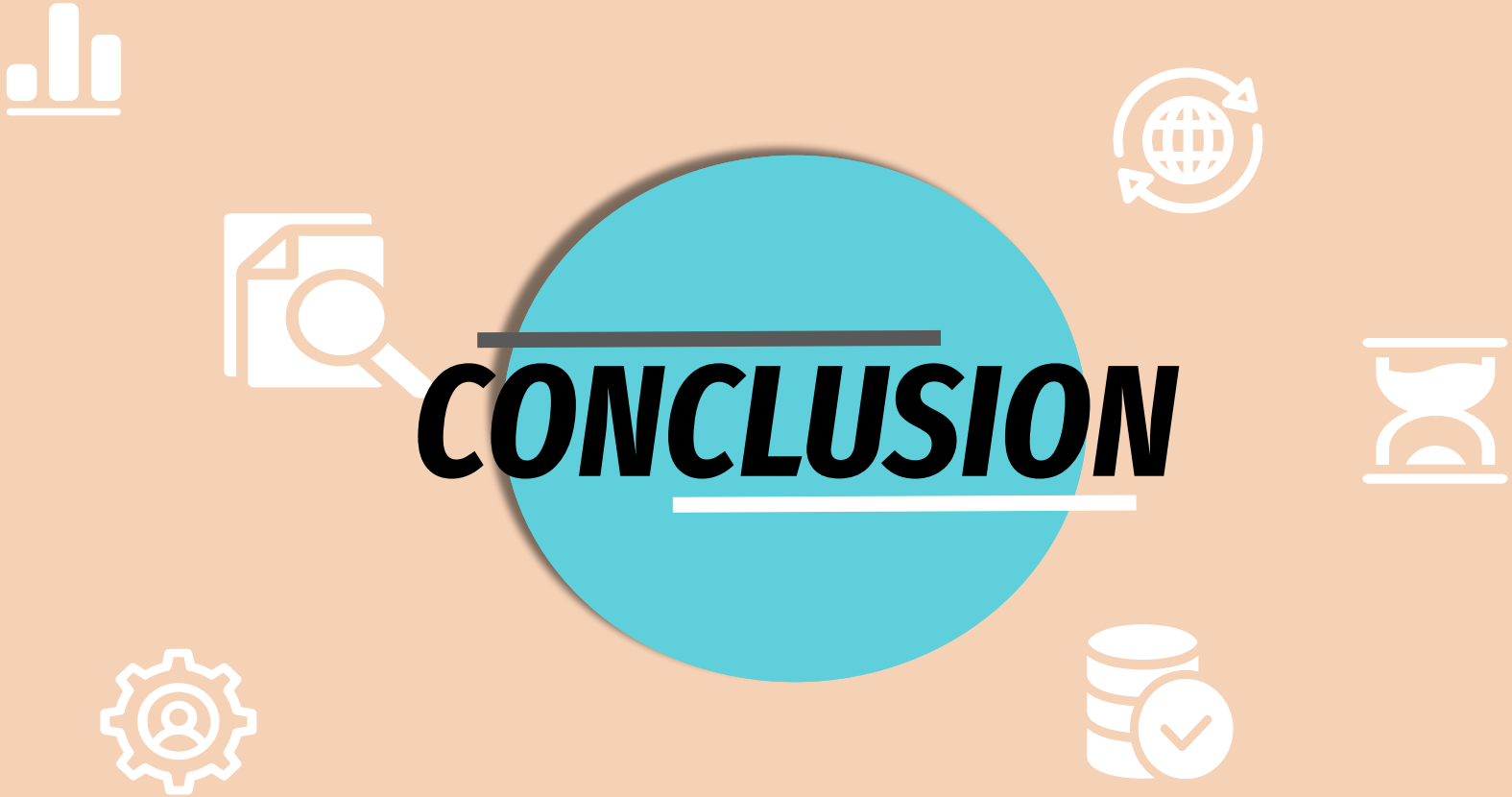
Therefore, we find more evidence to support our first hypothesis because we choose the parallel slopes model.

Findings - Overview



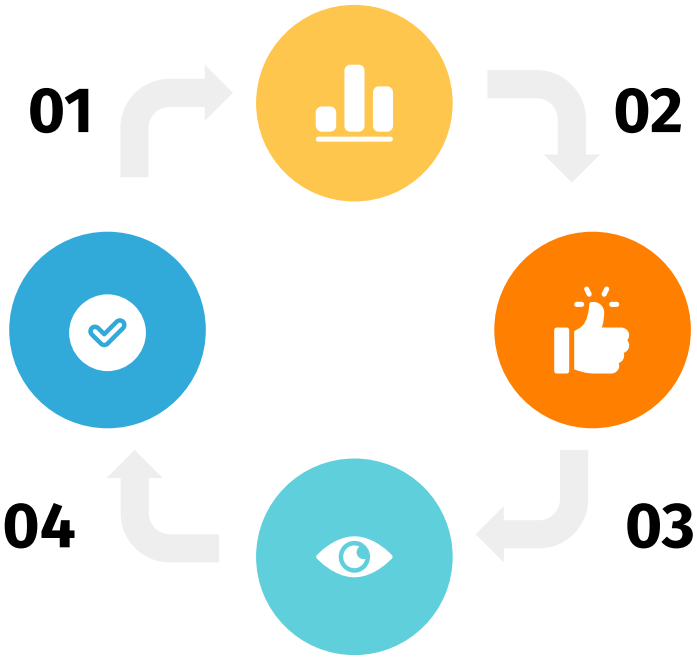
Holding everything else constant, on average, as GDP per capita increases, the predicted funding amount of a tech company increases too

Holding everything else constant, on average, a company in the Series C funding stage is predicted to receive more funding compared to one who is not.


CONCLUSION

Best model

Parallel slopes model looking at GDP per capita and whether the company is in Series C funding stage or not.



Statistically Significant Results

Funding amount vs GDP per capita → Positive Linear Relationship

Funding amount vs Series C or not → Series C companies receive more funding than those who are not.

Looking Ahead

Looking into other key independent variables: for example emphasizing whether the company is a B2B software or not

Practical Significance

Since all the models generated have a low adjusted R^2, our models overall does not practically significantly explain the amount of unexplained variation in funding amount.