

Exercise 4 Increasing Well-Being with Data Analytics

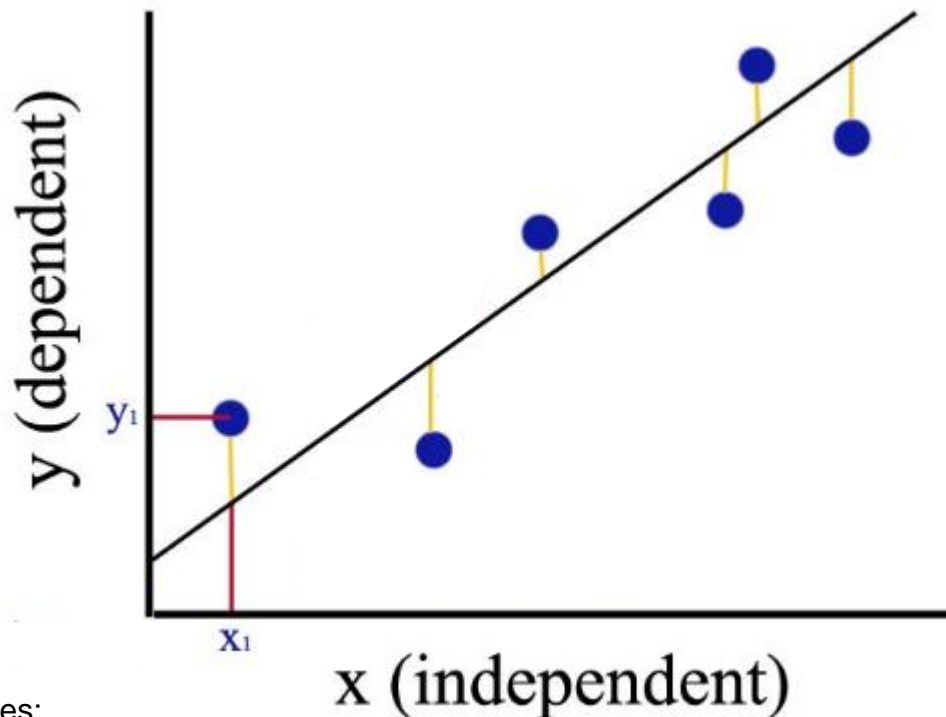


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Fundamental Regression Model: Ordinary Least Squares (OLS)

OLS: method for estimating the unknown parameters in a linear regression model.



➡ cross-sectional data

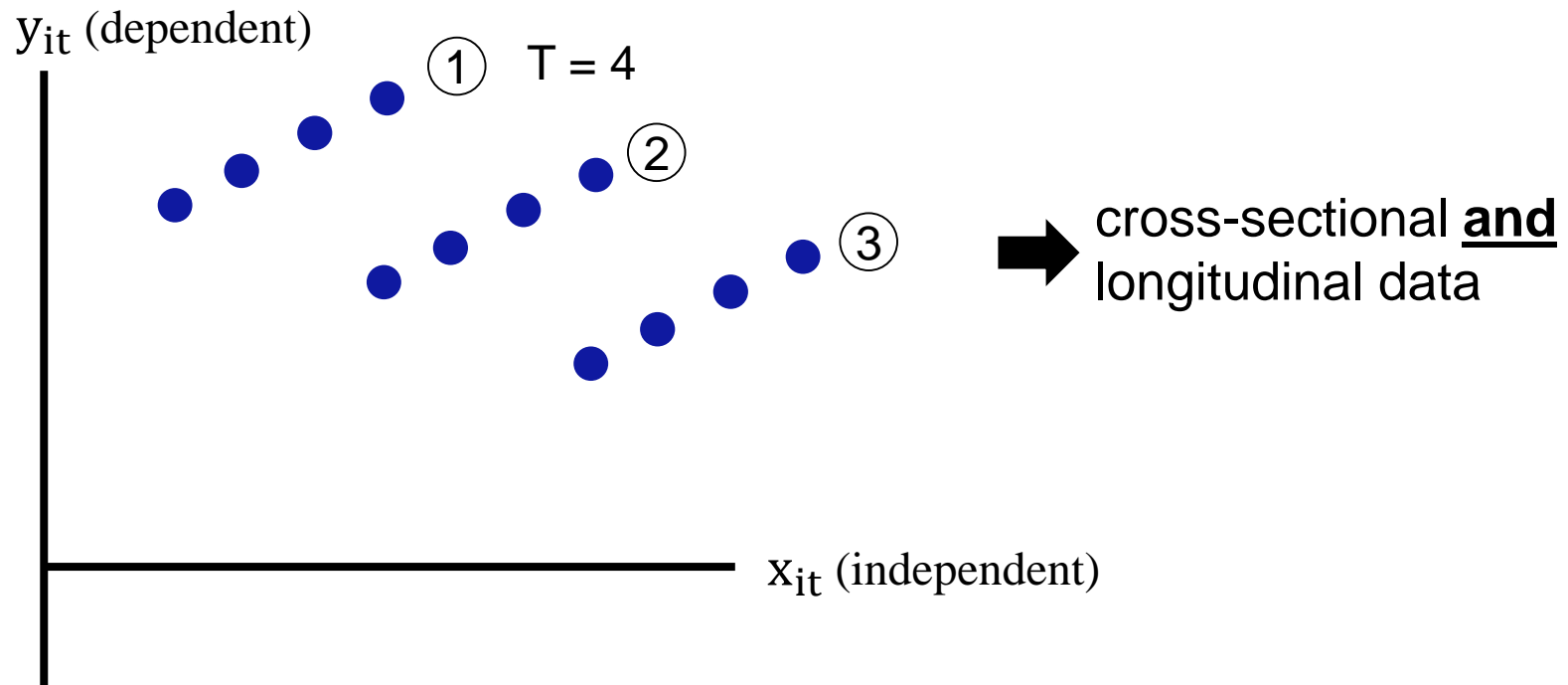
Sources:

<https://medium.com/analytics-vidhya/ordinary-least-square-ols-method-for-linear-regression-ef8ca10aadfc>;

https://en.wikipedia.org/wiki/Ordinary_least_squares

Advanced Regression Analysis: Panel Regression Model

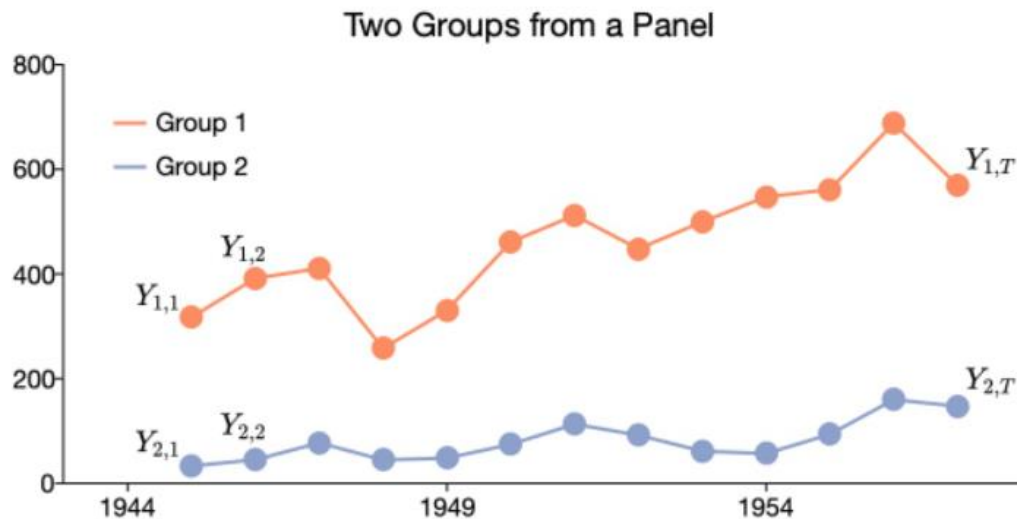
Panel data are collected over more than two dimensions (i.e., time, individuals, and some third dimension).



Sources:

[https://en.wikipedia.org/wiki/Panel_analysis#:~:text=Panel%20\(data\)%20analysis%20is%20a,run%20over%20these%20t wo%20dimensions.](https://en.wikipedia.org/wiki/Panel_analysis#:~:text=Panel%20(data)%20analysis%20is%20a,run%20over%20these%20t wo%20dimensions.)

Example Panel Data



Group	Time Period	Notation
1	1	Y_{11}
1	2	Y_{12}
1	3	Y_{1T}
\vdots	\vdots	\vdots
N	1	Y_{N1}
N	2	Y_{N2}
N	T	Y_{N3}

Sources:

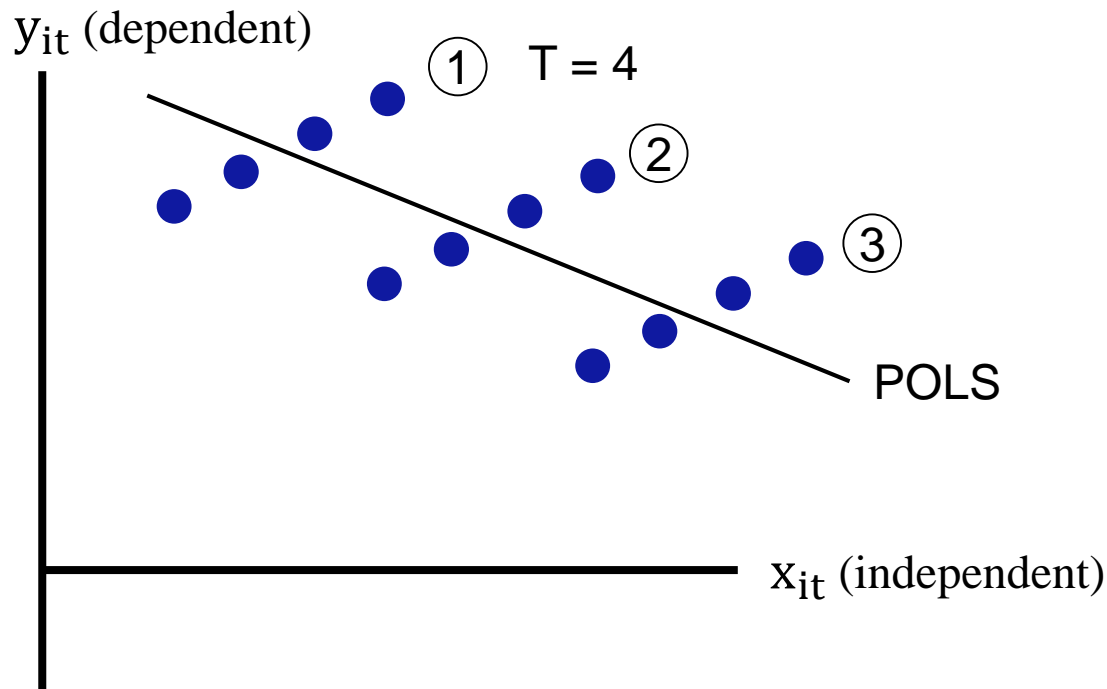
<https://www.aptech.com/blog/introduction-to-the-fundamentals-of-panel-data/>

Wellbeing Panel Data

ID	Wellness Activity	Life Satisfaction	Social Media Time	Date
1	0	4	100 min/d	22/05/2021
1	1	6	88 min/d	30/05/2021
1	1	7	88 min/d	07/06/2021
2	0	4	132 min/d	22/05/2021
2	1	4	147 min/d	30/05/2021
2	1	5	121 min/d	07/06/2021
⋮	⋮			⋮
N	0	4	39 min/d	22/05/2021
N	1	6	29 min/d	30/05/2021
N	1	6	32 min/d	07/06/2021

Advanced Regression Analysis: Panel Regression Model

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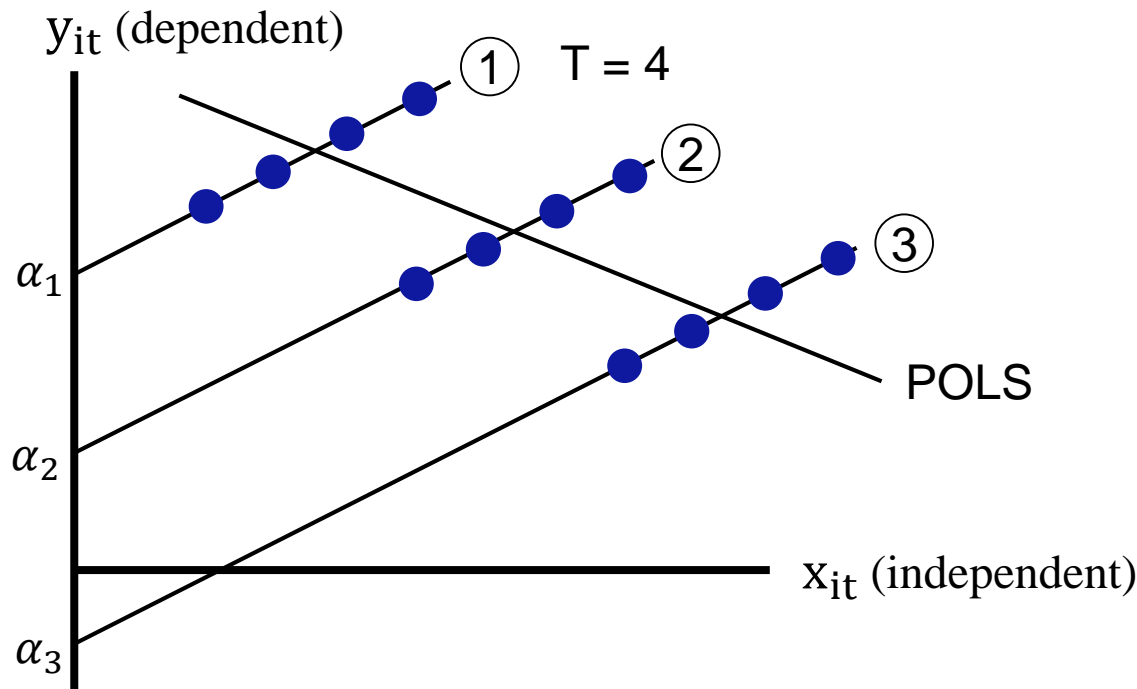


Sources:

[https://en.wikipedia.org/wiki/Panel_analysis#:~:text=Panel%20\(data\)%20analysis%20is%20a,run%20over%20these%20t wo%20dimensions.](https://en.wikipedia.org/wiki/Panel_analysis#:~:text=Panel%20(data)%20analysis%20is%20a,run%20over%20these%20t wo%20dimensions.)

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Thank you!



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