

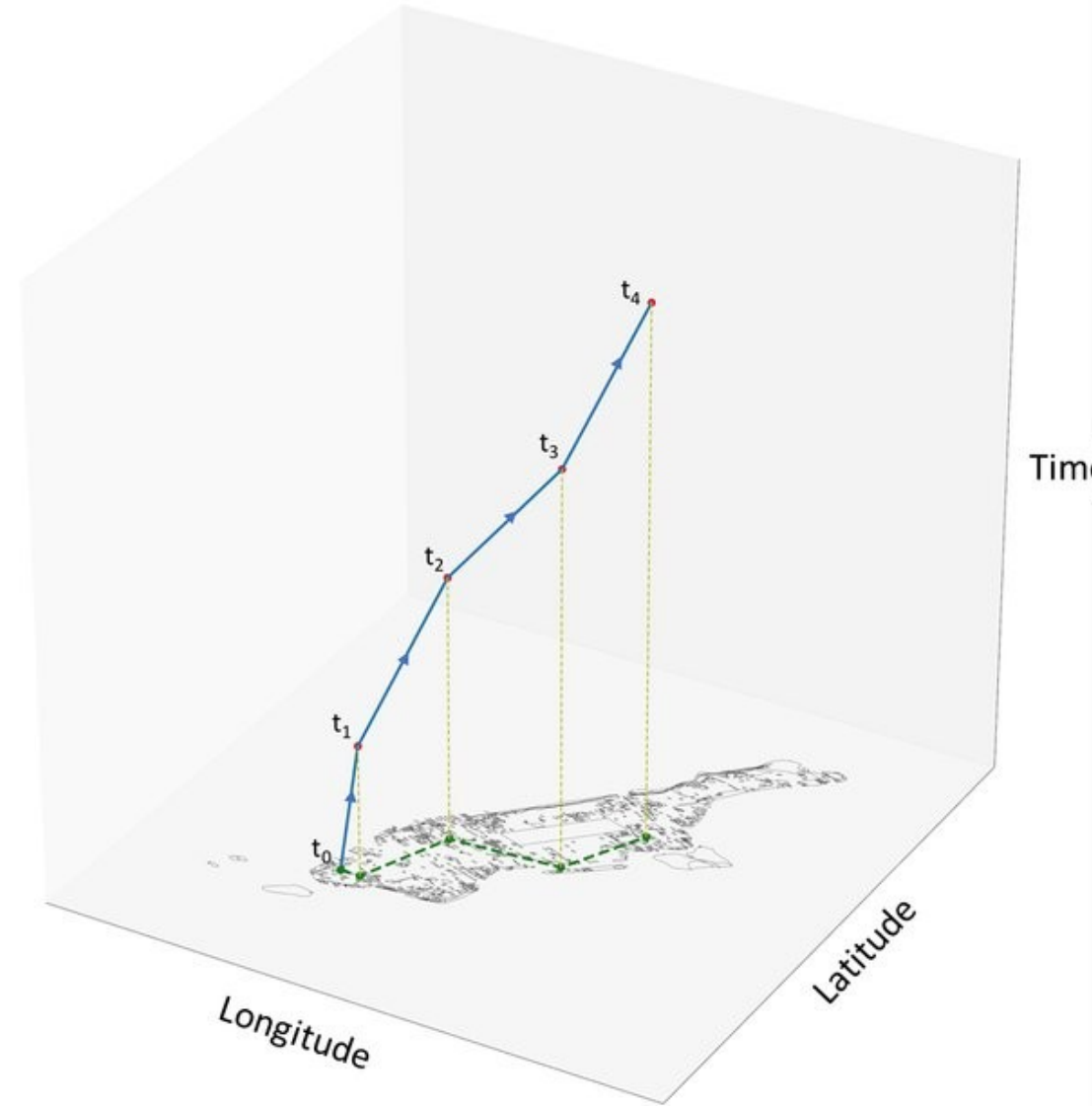
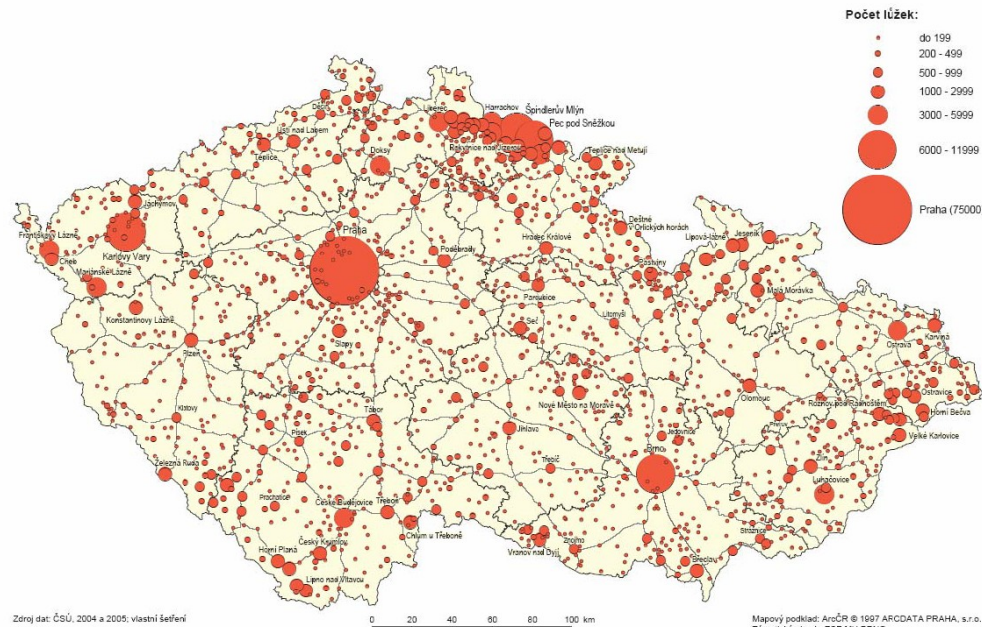
**MUNI**  
**ECON**

# **Analýza sezónnosti**

# Cestovní ruch

- Časo-prostorově diferencovaný jev
  - Na různých prostorových úrovních (body, ulice, města, okresy, kraje, státy)
  - V různých časových úsecích (hodiny, dny, týdny, měsíce)

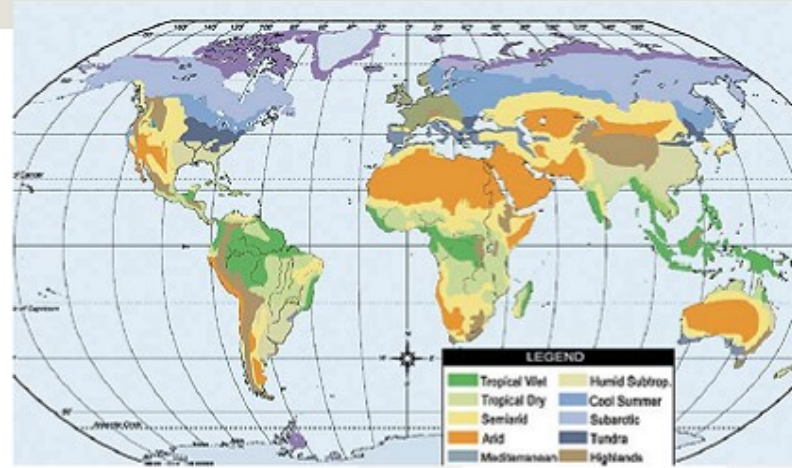
HROMADNÁ UBYTOVACÍ ZAŘÍZENÍ



# Sezónnost

What is seasonality?

- Systematic intra-year variation in visitation caused by exogenous factors
  - Natural (e.g. climate)
  - Institutional (e.g. school holidays, regular events)
  - Socio-cultural (e.g. sport season)



# Sezónnost

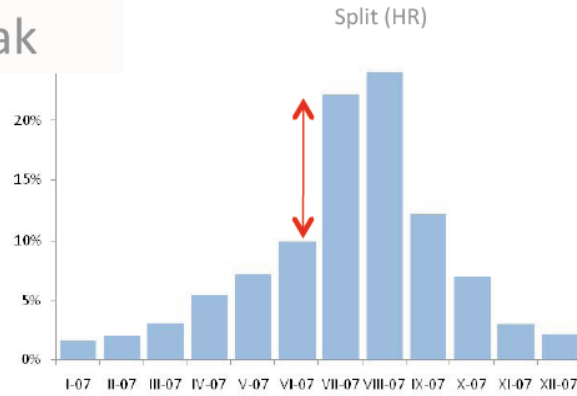
## Factors causing seasonality of tourism demand

	Pull	Push
Natural factors	Temporal variations of natural conditions (e.g. sunlight, snowfall) in the destination	Temporal variations of natural conditions (e.g. temperature, rainfall) in the origin
Institutional factors	Human-made decisions affecting service accessibility (e.g. Opening calendar, sport season) in the destination	Human-made decisions affecting free-time availability (e.g. school or industrial holidays) in the origin
Cultural or social factors	Cultural and religious celebrations at the destinations	Fashion

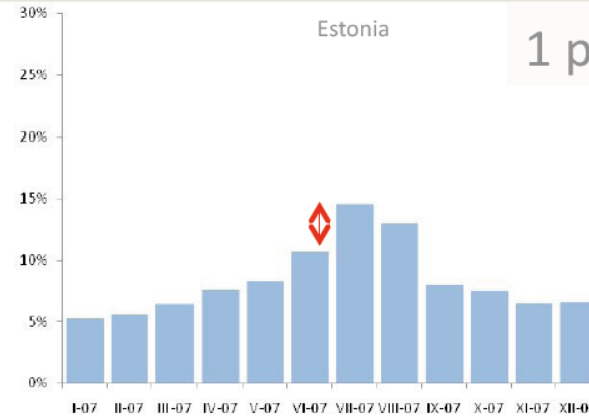
(Adapted from Lundtorp, Rassing and Wanhill, 2001)

# Sezónnost

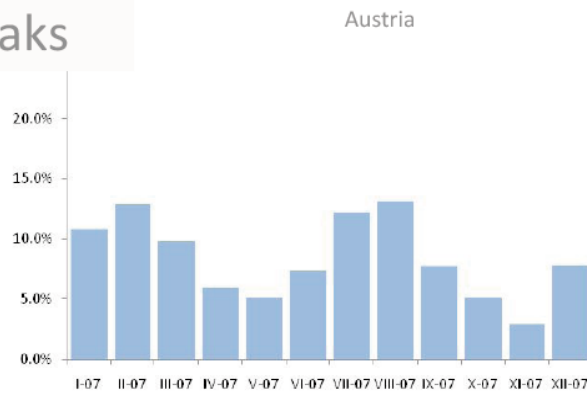
1 peak



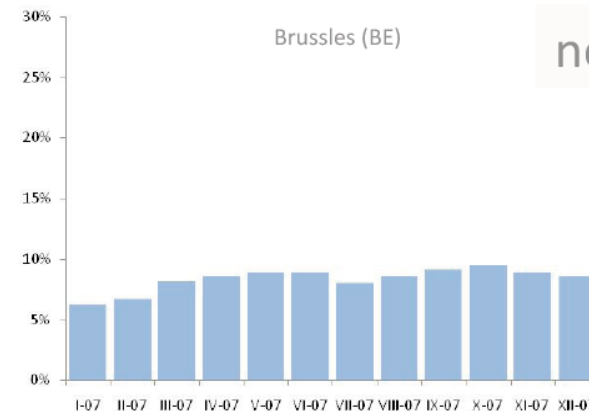
1 peak



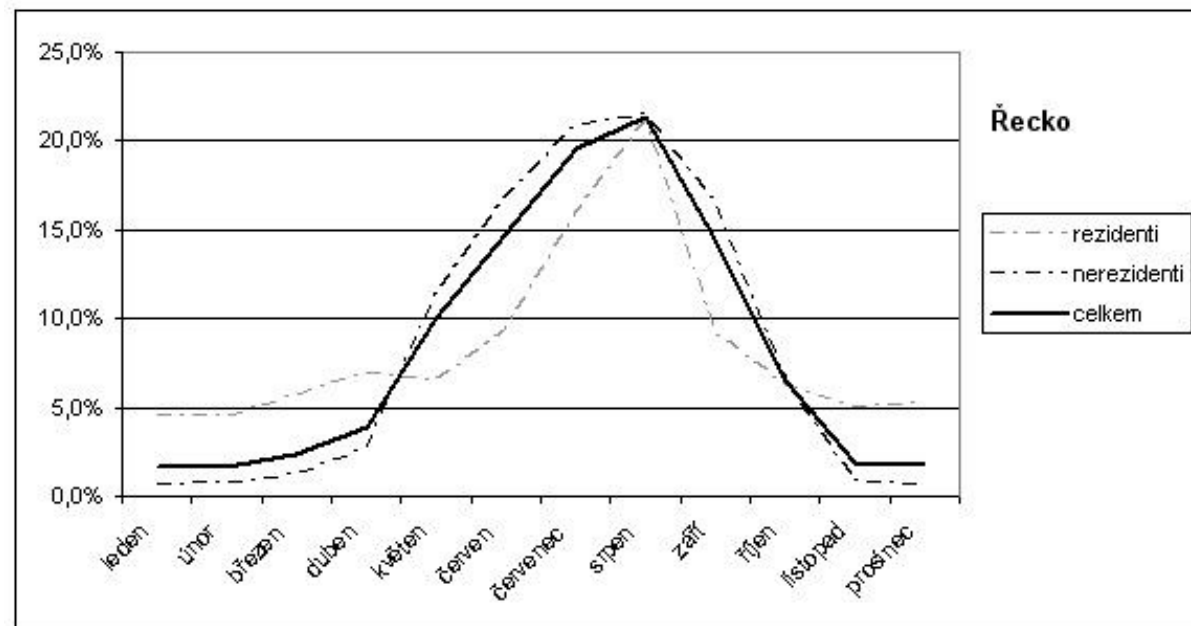
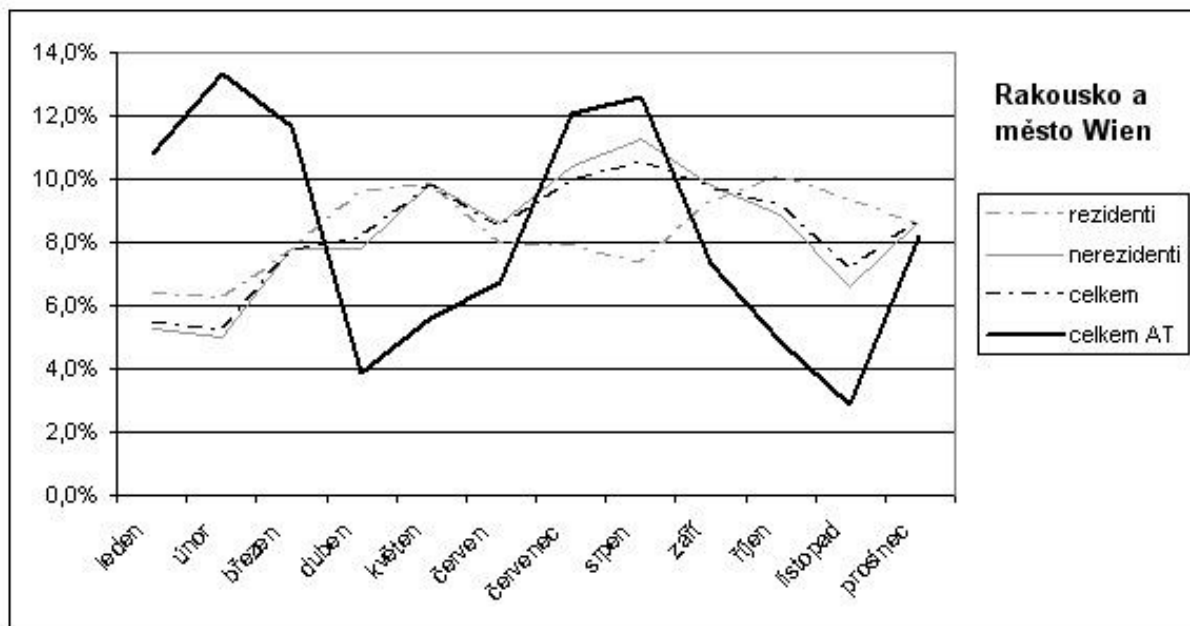
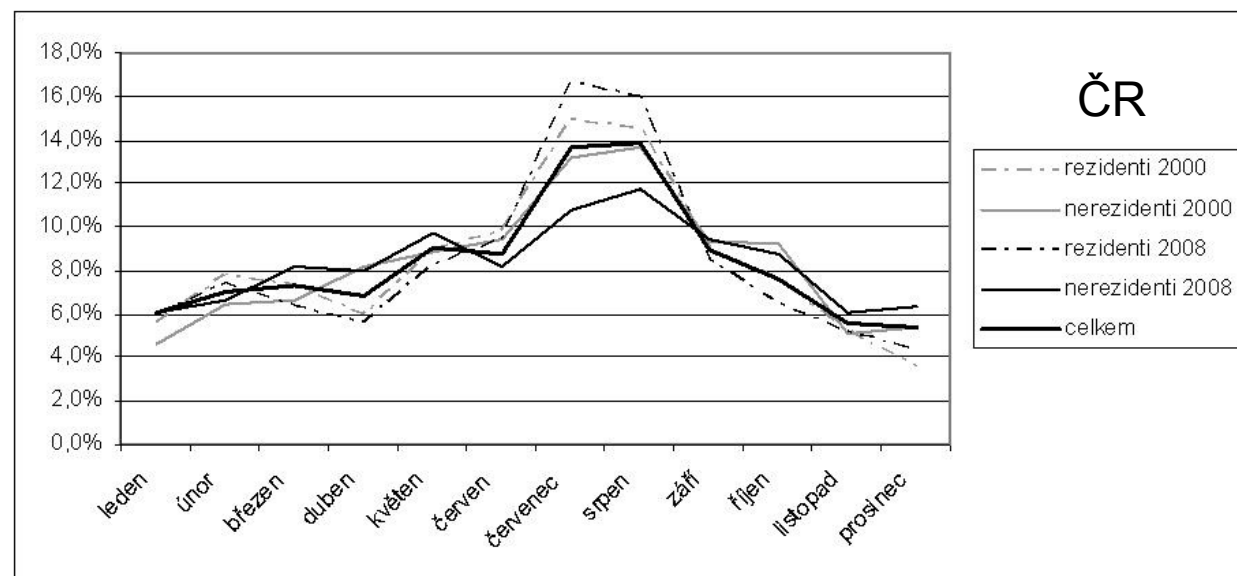
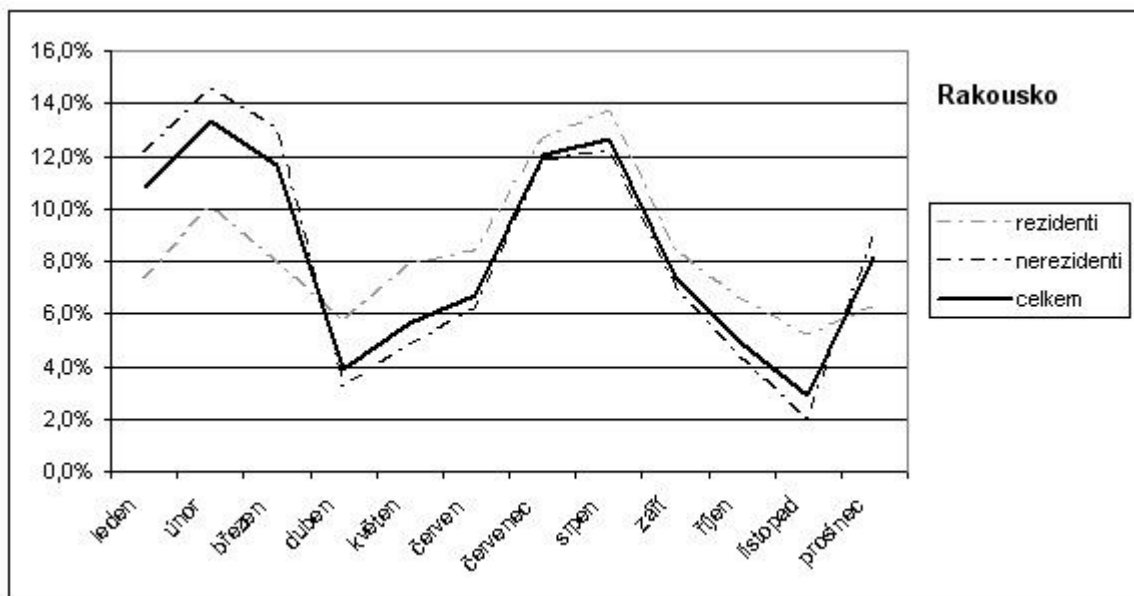
2 peaks



no peak



Bednights in all paid forms of accommodations – foreign & domestic (2007)



# Sezónnost

Seasonality has a great economic importance:

- High season = high prices
- Underutilization of tourism infrastructure (e.g. hotel rooms in the off-peak season)
- Lower efficiency of seasonal employment (e.g. difficult recruitment in the high season, lower quality)
- Depletion of natural resources (e.g. risk of water shortages)
- Congestion (traffic, waste)

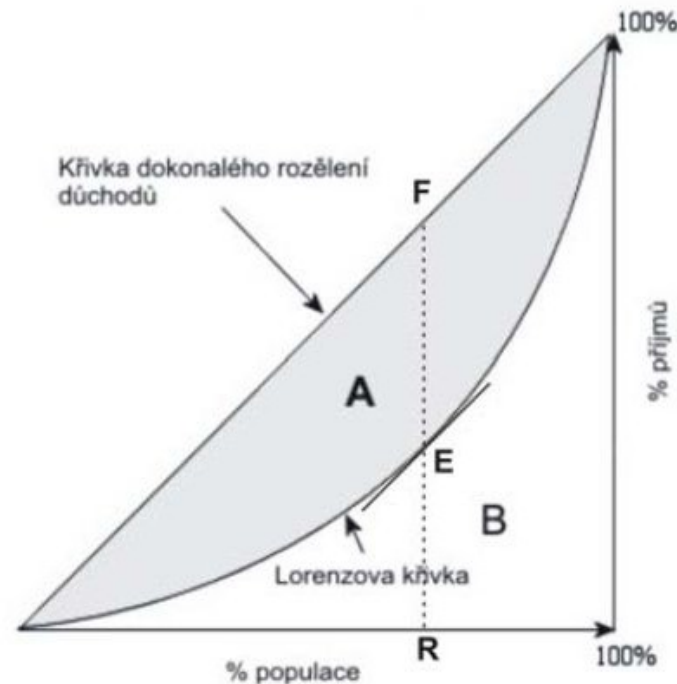
# Měření sezónnosti

Giniho koeficient a Lorenzova křivka

## Výpočet Giniho koeficientu

[Výukové video zde](#)

$$G = \frac{A}{A + B}$$



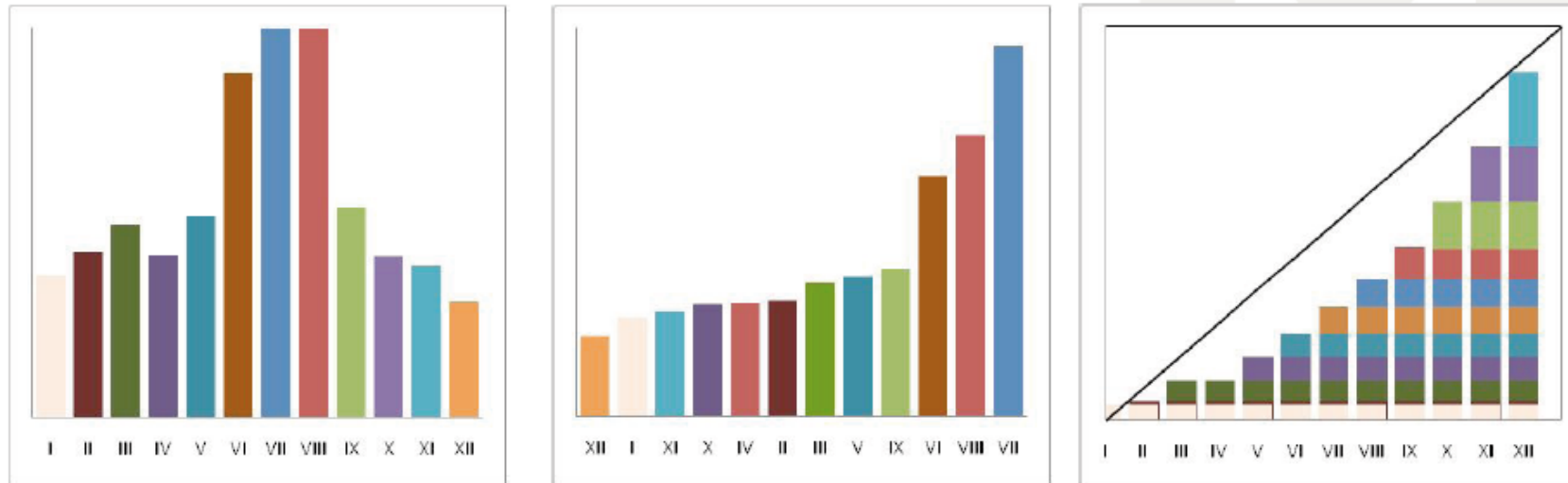


# Amplitude of seasonality

Measure of dispersion.

The Gini can be approximated with trapezoids:

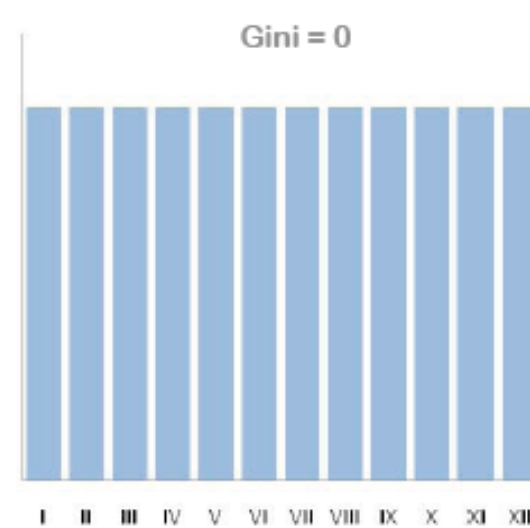
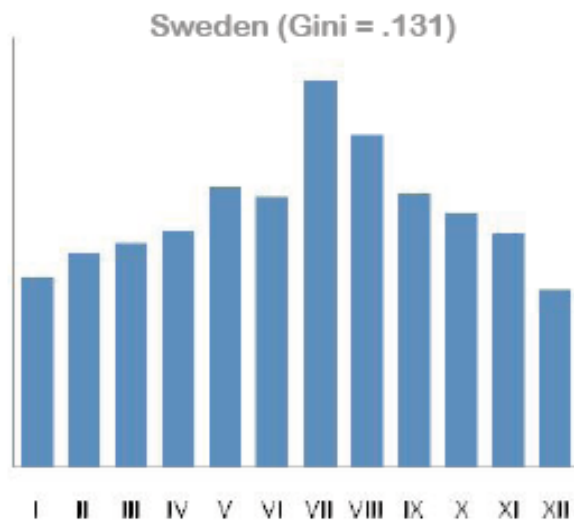
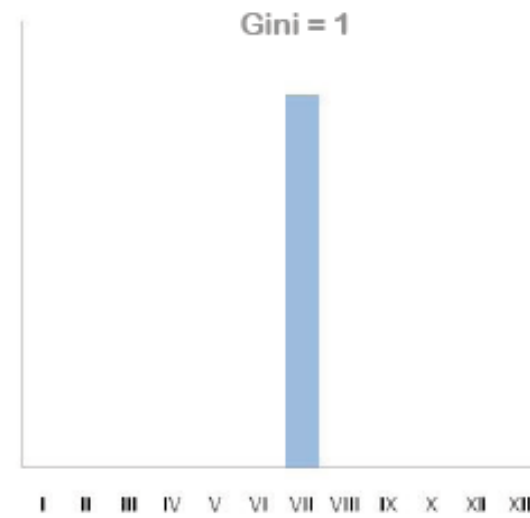
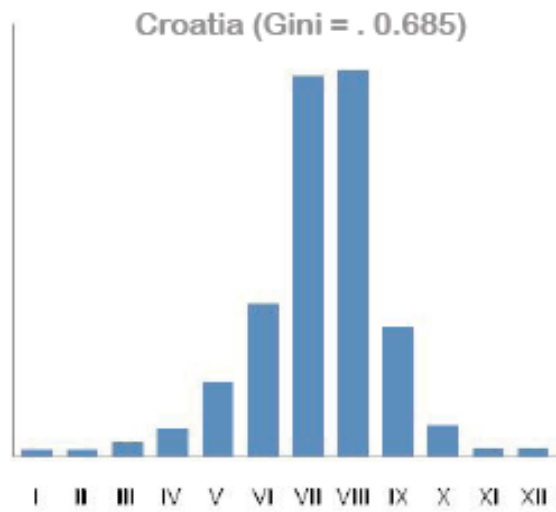
$$G^* = 1 - \sum_{i=1}^{12} (X_i - X_{i-1}) \times (Y_i + Y_{i-1})$$



sorted



normalized and cumulated



Bednights in all paid forms of accommodations - foreign & domestic (2008)

# Seminární úkol

Lorenzova křivka a Giniho koeficient

- Cílem bude srovnat sezónnost návštěvnosti Prahy a JMK

## Postup

- Data získáte z Veřejné databáze ČSÚ
  - Vygenerování tabulky – vlastní definování parametrů (přenocování - celkem, 2012, 2019) a úprava do podoby datasetu
- Výpočet procentního podílu pro roky 2018, 2012 a podílu časového úseku (1/12)
- Seřadit od nejmenších po nejvyšší hodnoty
- Kumulativně sečíst (návštěvnost i okresy) a zobrazit v grafu (xy plot) vč. osy pro rovnoměrné rozložení

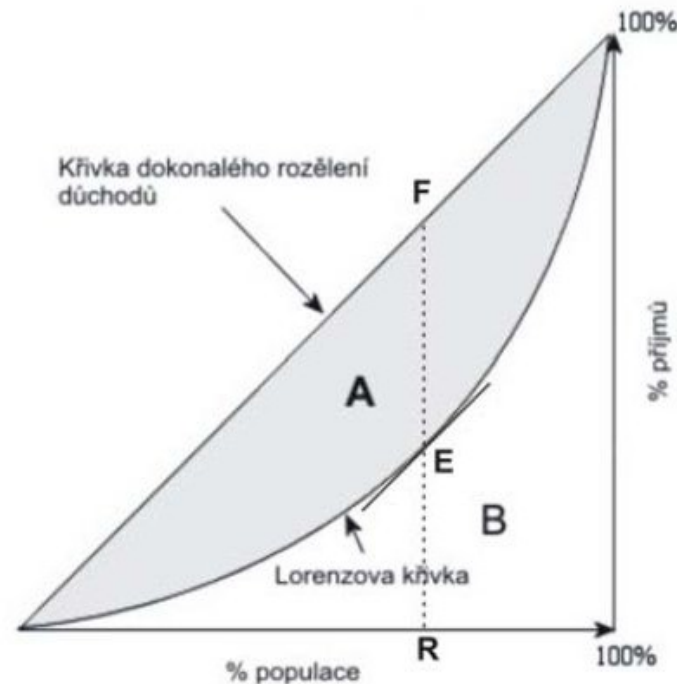
# Seminární úkol

Giniho koeficient

## Výpočet Giniho koeficientu

[Výukové video 2 na výpočet Giniho koeficientu](#)

$$G = \frac{A}{A + B}$$



# Seminární úkol

Dobrovolná část

- Srovnat průběh měsíční sezónnosti Prahy, JMK a Královehradeckého kraje v jednom grafu a okomentovat důvody průběhu jednotlivých křivek.

# Další možnosti vyjádření sezónnosti

Assessing seasonality



in TourMIS



Austrian National Tourist Office  
www.tourmis.info

[ire] Fr. Valeria Croce (Supervisor)

Deutsch

**Intro**

- About TourMIS
- Sponsors and partners
- Guestbook
- Related links
- Logout
- Edit user profile
- TourMIS access statistics

**Tourism in Europe**

- Latest Trends
- Nights & arrivals
- Attractions & sights

**City tourism in Europe**

- Latest Trends
- Nights & arrivals
- Eurocity visitor survey
- www.visit-europeancities.info

**Tourism in Austria**

- Latest Trends
- Nights & arrivals
- Austrian visitor survey
- Attractions & sights
- Queries on www.austria.info

**Maintenance**

- Administer access rights
- E-mailing
- OSTAT data import
- Delete e-mail addresses

**TourMIS Resources**

- TourMIS white paper
- Data Input Manual (for ECT and ETC members)
- Eurocity Manual
- Development of demand for TourMIS tables & graphs
- The definition and compilation of City Tourism
- Excel data upload form for ETC members
- Excel data upload form for ECT members

**Österreich Werbung**

ÖZC: www.austria.info  
ÖZB: www.austria-tourism.com

**Tourism in Europe >> Nights & arrivals**

- Availability
- Monthly data
- Annual data
- Data entry

- Trends based on latest available relative figures
- Arrivals or nights of a market in all ETC destinations
- Arrivals or nights in a ETC destination by various markets
- Arrivals and nights (most commonly used data) of a market in all ETC destinations
- Time series of nights or arrivals (all months; +graph)
- Assessing seasonality

Destination: Austria

- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland Rep
- Italy
- Latvia
- Lithuania
- Malta
- Monaco
- Montenegro
- Norway
- Poland
- Portugal
- Romania
- Serbia
- Slovenia
- Spain
- Sweden
- Switzerland
- Ukraine

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**City tourism in Europe >> Nights & arrivals**

- Availability
- Monthly data
- Annual data
- Shopping
- Data entry

- Arrivals or nights of a market in all cities
- Arrivals or nights in a city by various markets
- Arrivals and nights (most commonly used data) of a market in all cities
- Time series of nights or arrivals (all months; +graph)
- Assessing seasonality

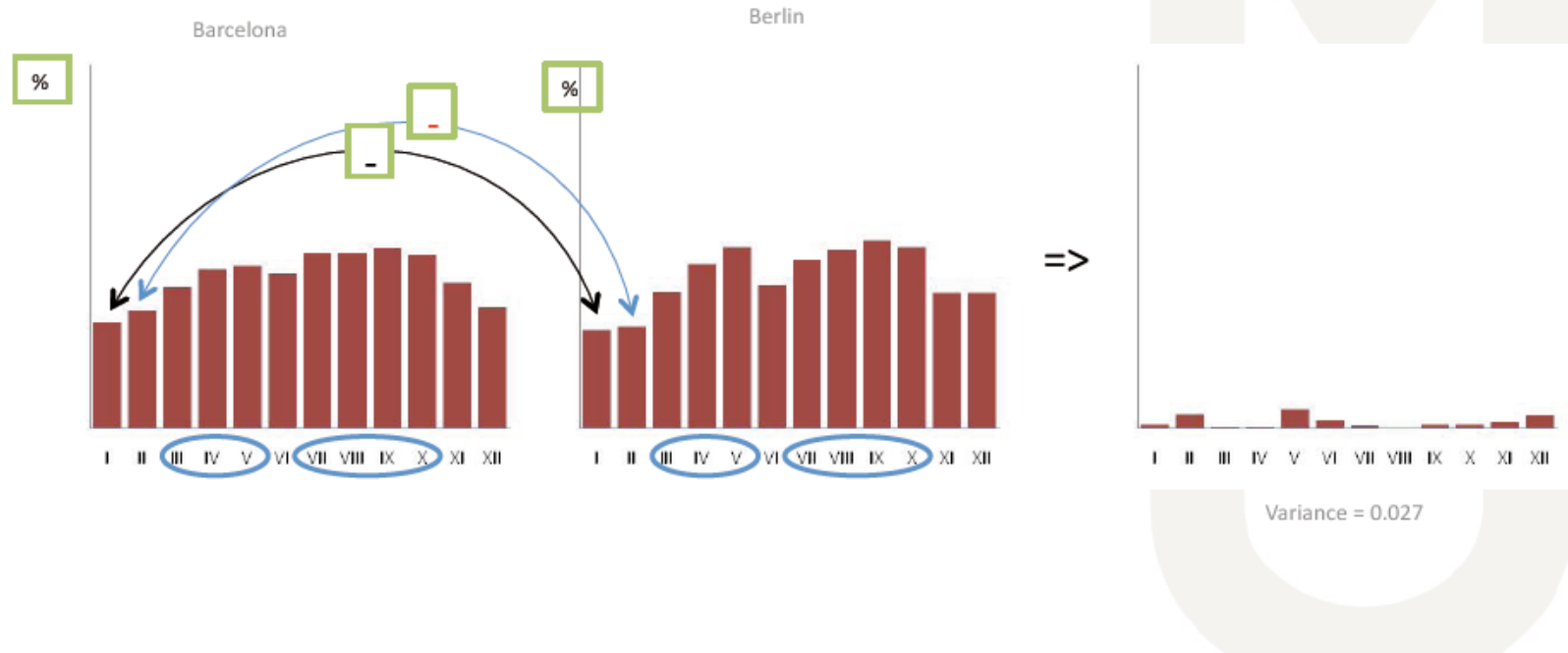
Destination: Aarhus

- Aarhus
- Amsterdam
- Antwerp
- Barcelona
- Bari
- Basel
- Belgrade
- Berlin
- Bern
- Bilbao
- Bologna
- Bonn
- Bratislava
- Brno
- Bruges
- Brussels
- Budapest
- Cagliari
- Copenhagen
- Dijon
- Dresden
- Dubrovnik
- Eisenstadt
- Florence
- Geneva
- Genoa
- Ghent
- Gijón
- Göteborg

# Srovnání variability mezi dvěma destinacemi

Distance between peer objects:

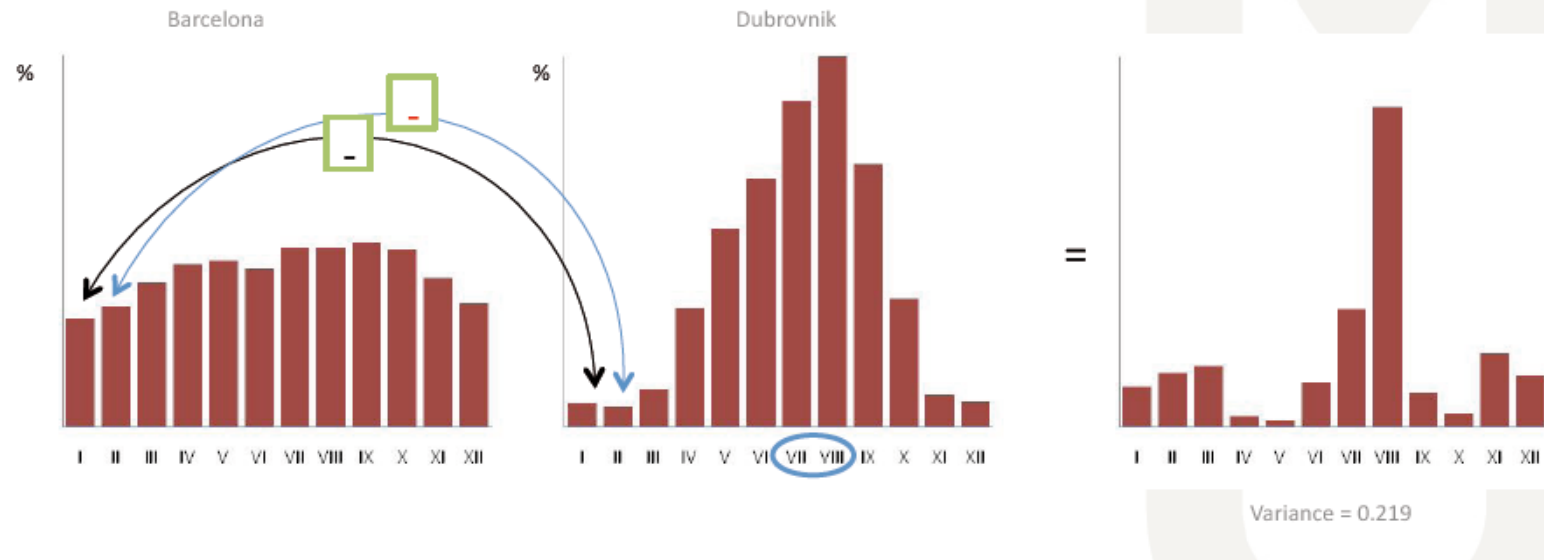
$$d_{kl} = \left[ \sum_{r=1}^R (x_{kr} - x_{lr})^2 \right]^{\frac{1}{2}}$$



# Srovnání variability mezi dvěma destinacemi

Distance between peer objects:

$$d_{kl} = \left[ \sum_{r=1}^R (x_{kr} - x_{lr})^2 \right]^{\frac{1}{2}}$$





# Další metriky

- Index sezónnosti – vyjádření sumy dvou nejnavštěvovanějších měsíců k celkové návštěvnosti
- Identifikace převažujícího typu sezónnosti

	Sezóna			Převládající typ sezónnosti
	zimní	letní	vedlejší	
Praha	26,7	39,1	34,1	nevyhraněná
Středočeský kraj	18,2	53,8	27,9	letní
Jihočeský kraj	16,4	62,2	21,4	letní
Plzeňský kraj	21,6	53,2	25,2	letní
Karlovarský kraj	25,1	39,0	35,8	nevyhraněná
Ústecký kraj	20,2	50,3	29,5	letní
Liberecký kraj	36,1	44,4	19,5	zimní
Královohradecký kraj	39,2	41,0	19,8	zimní
Pardubický kraj	21,9	52,6	25,5	letní
Kraj Vysočina	18,5	57,5	24,0	letní
Jihomoravský kraj	17,7	53,3	29,0	letní
Olomoucký kraj	25,9	45,1	29,0	nevyhraněná
Zlínský kraj	22,6	47,4	29,9	nevyhraněná
Moravskoslezský kraj	29,2	42,5	28,2	zimní
Česká republika	25,7	45,3	29,0	