The Danish Problem – Soon Everybody's?

- An analysis of different effects of digitalization on postal services in Denmark and Sweden.

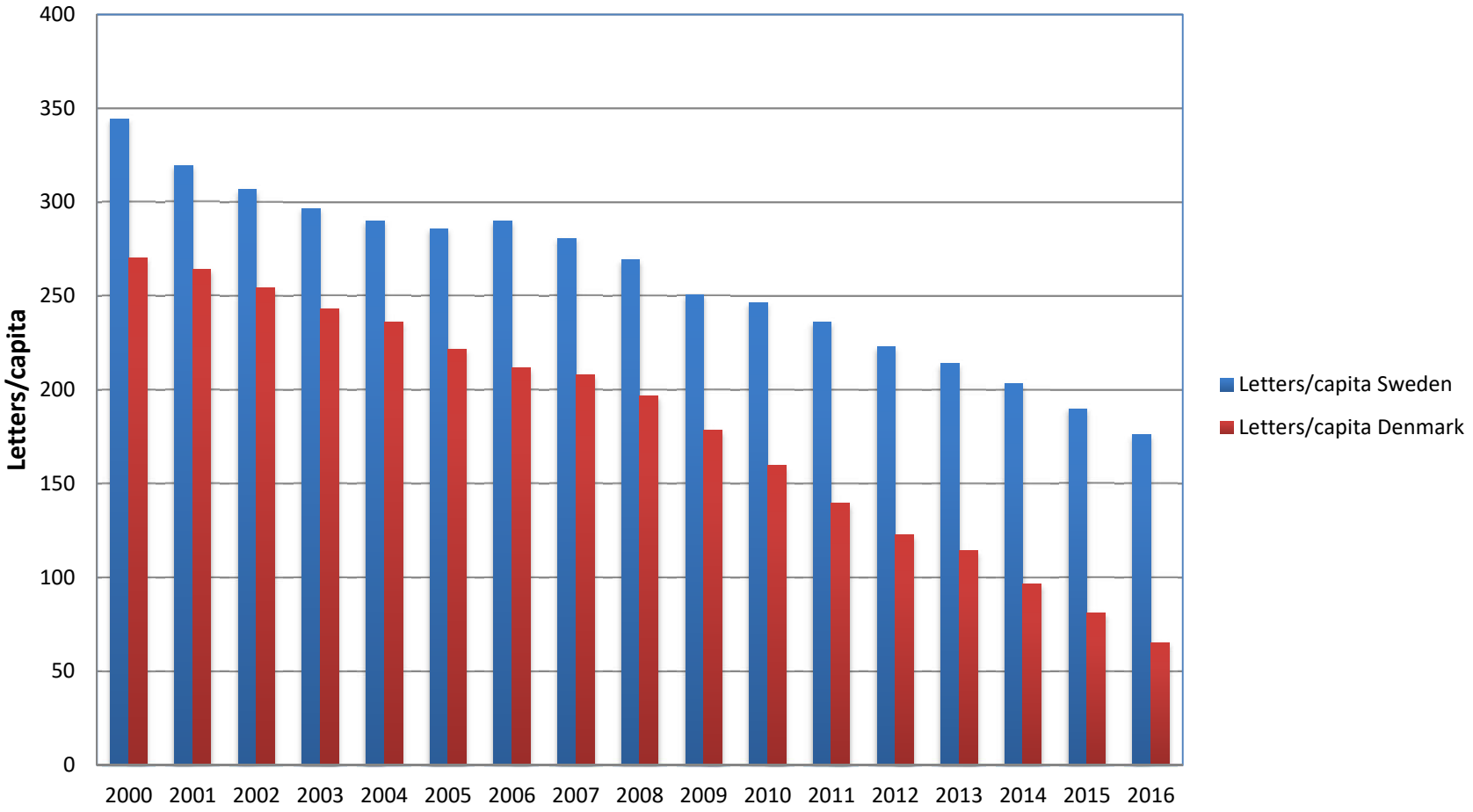
Peter Andersson
Sofia Bengtsson
Johanna Eriksson

Interesting case to compare Denmark and Sweden

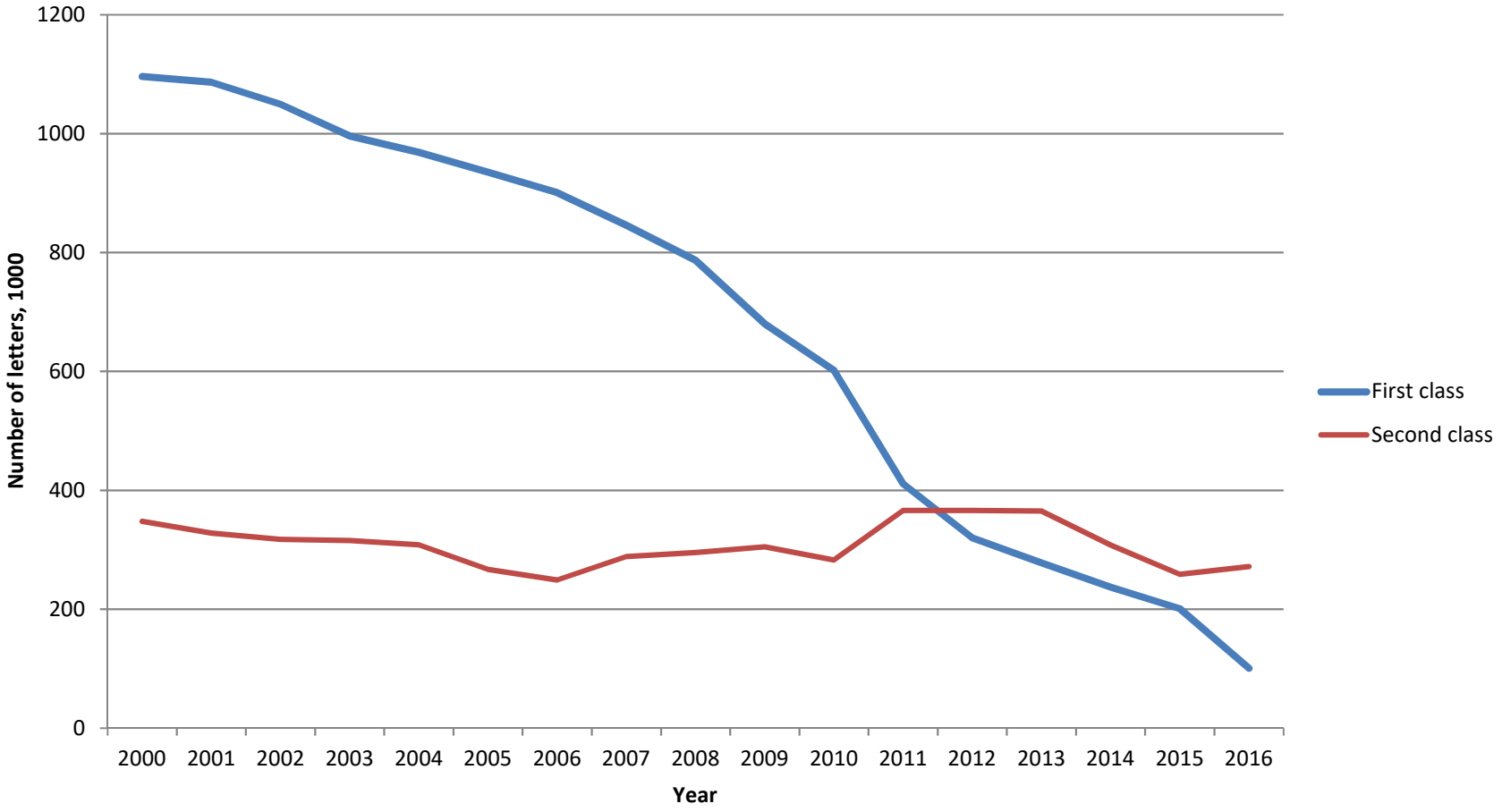
- Neighboring countries
- Same GDP per capita
- Same universal service provider: Postnord
- High internet penetration
- More mail in Sweden
- Some competition in Sweden
- Profitable in Sweden unprofitable in Denmark
- Danish law digital mailbox

The aim of the paper is to explain the different rate of decline in letter volumes in Denmark and Sweden by analyzing the effects of digitalization of the market for messages on the generalized costs for senders and receivers, and the strategies to meet this development.

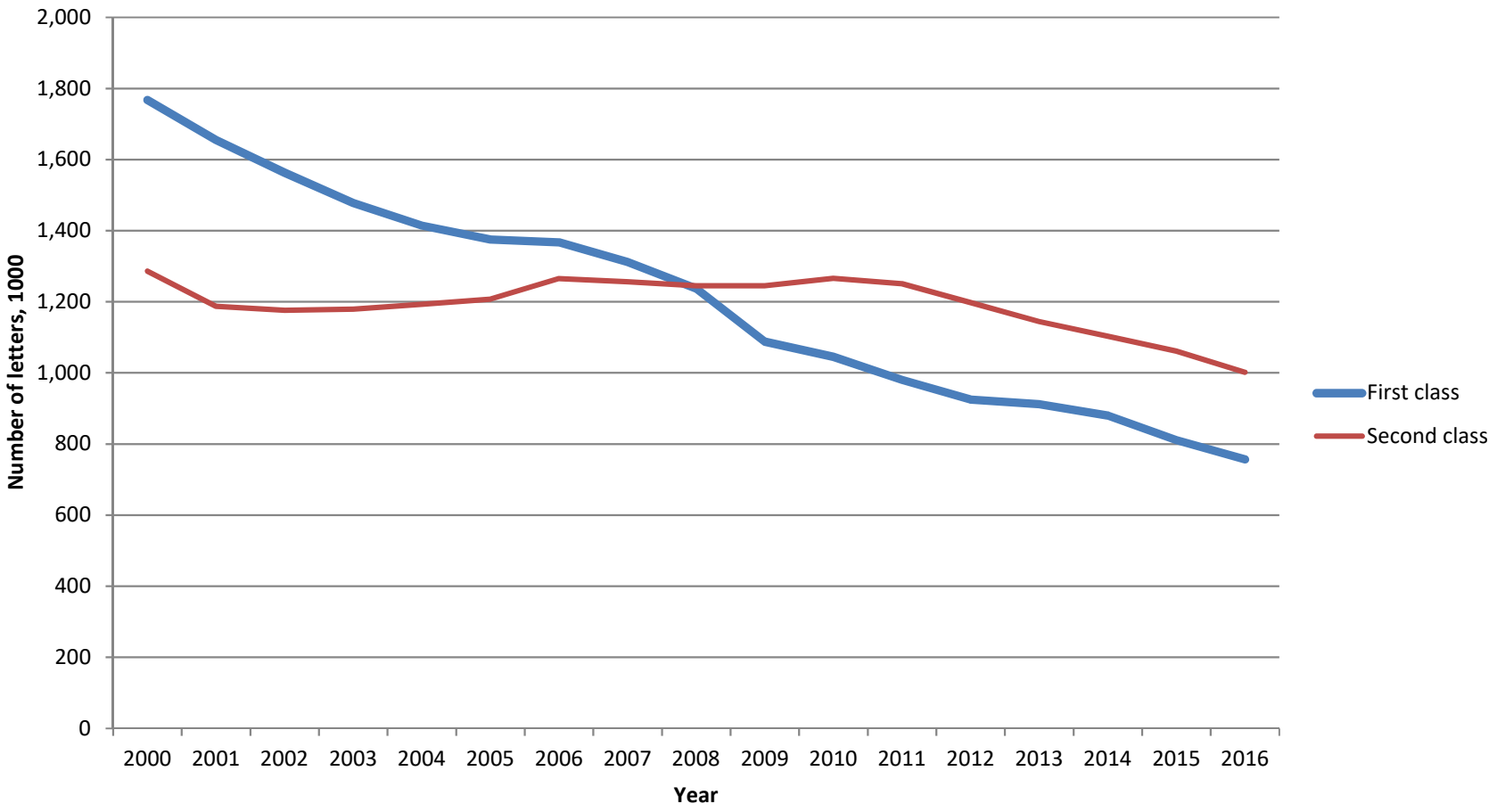
Postnord's letter volumes per capita in Sweden and Denmark 2000-2016



Postnord's letter volumes in Denmark 2000-2016



Postnord's letter volumes in Sweden 2000-2016



Prices

Sweden

- First class single piece:
  0.93/0.54 EUR
- Second class bulk mail, pre-sorted:
  Postnord: 0.178/0.241 EUR
  Competitor: 0.144/0.217 EUR
- 1cl: +20% since 2006

Denmark

- ”First class single piece”
  Quickbrev:
  3.63 EUR
- Within five-day-delivery:
  1.21 EUR
- 1 cl: +182 % since 2006

The use of digital communication in Denmark, Sweden and the EU 2016

	Percentage of population		
	Denmark	**Sweden**	**EU28**
Access to internet and broadband at home	94	94	85
Access to broadband at home	92	89	83
Share of population 16-74 years using the internet	97	93	82
Using the internet daily	89	85	71
Never used the internet	2	3	14
Means for connecting to the internet			
- stationary computer	40	43	54
- mobile computer/laptop	76	70	64
- tablet	56	49	44
- mobile phone/smartphone	85	84	79
- smart-TV	23	27	15
Using e-mail	93	86	71
Using social media	74	70	52
Using net banking	88	83	49
Using digital communication with public authorities	88	78	48
Shopping on the internet	82	76	55

Demand for postal services comes from senders and receivers, considering the generalized cost

- Generalized cost (GC) = Price + Transaction cost
- $Q_P = f(a(GC^S_P, GC^S_d)) + (1\text{-}a)(GC^R_P, GC^R_d)$

  a = demand decision taken by the sender
  p = postal; d = digital

- Traditionally: a=1; no digital alternative ->

  $Q_P = f(GC^S_P)$ the price (postage)+transaction costs for the sender determines demand

- Today a whole new situation:
  - the receivers' play a role (a<1)
  - digital substitution possible: GC_d

Use of digital mailboxes
(number of connected receivers)

	Denmark	**Sweden**				
	Digibox	*Min Myndighets-post*	*Kivra*	*Digimail*	*E-boks*	Total
20 March 2017	4,307	329	972	26	0	1,327
30 April 2018	4,366	396	2,265	39	13	2,713

Digital messages in 2017

- **Sweden:** 1.4 million messages were sent from the public sector (=0.06 % of all letters); the private operator Kivra delivered 30 million messages (=1.3 % of all letters)
- Denmark: 442 million messages were sent from the public sector.
- Denmark: E-boks established in 2001,
  already in 2013: 3 million users
- **Danish market mature, Swedish fragmented!**

Conclusions

1. The establishment of one digital mailbox 2001 (E-boks) -> low transaction costs for receivers to connect
2. Digital communication possible for senders
3. Senders and/or receivers decide the demand for messages (0<a<1)
4. The law in Denmark required an established digital mailbox already. Enhanced substitution but did not create it

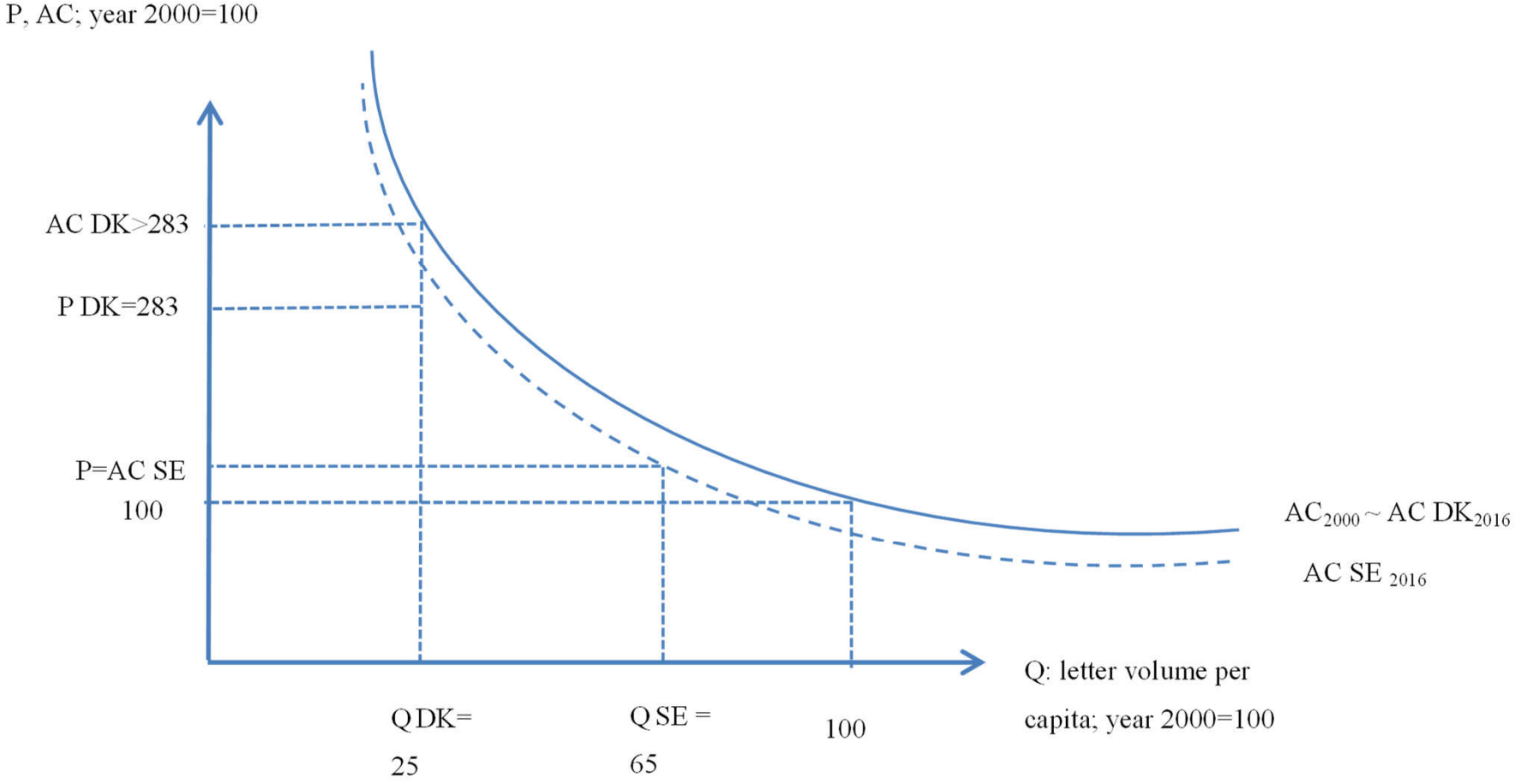
5. Weak cost adjustments - > price increases for mail in Denmark -> high GC for mail.

6. Competition in Sweden -> low GC for second-class mail

7. Price cap in Sweden -> low GC for first-class mail

8. Fragmented undeveloped market for digital communication in Sweden -> high GCd

GC_p DK > GC_p SE GC_d DK < GC_d SE


P, AC; year 2000=100
AC DK>283
P DK=283
P=AC SE
100
AC2000 ~ AC DK2016
AC SE 2016
Q: letter volume per capita; year 2000=100
Q DK= 25
Q SE = 65
100