

The utility of time - revisited after 25 years

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Why bother with the utility of time?

- ✓ Social rhythm
 - ✓ evening and weekend society
 - ✓ normative structure of time
 - ✓ operationalizable / quantifiable ?

- ✓ Evaluation of work schedules
 - ✓ desynchronisation
 - ✓ operationalizable / quantifiable ?
 - ✓ hour = hour ?

Common experience

- ✓ Certain activities can only be performed at certain times
 - ✓ meeting friends
 - ✓ going to the theatre
- ✓ While others are possible at nearly anytime
 - ✓ reading
 - ✓ relaxing / sleeping

- ✓ There is a lot of opportunities at certain times
- ✓ Whereas there can be nothing done at others - except sleeping

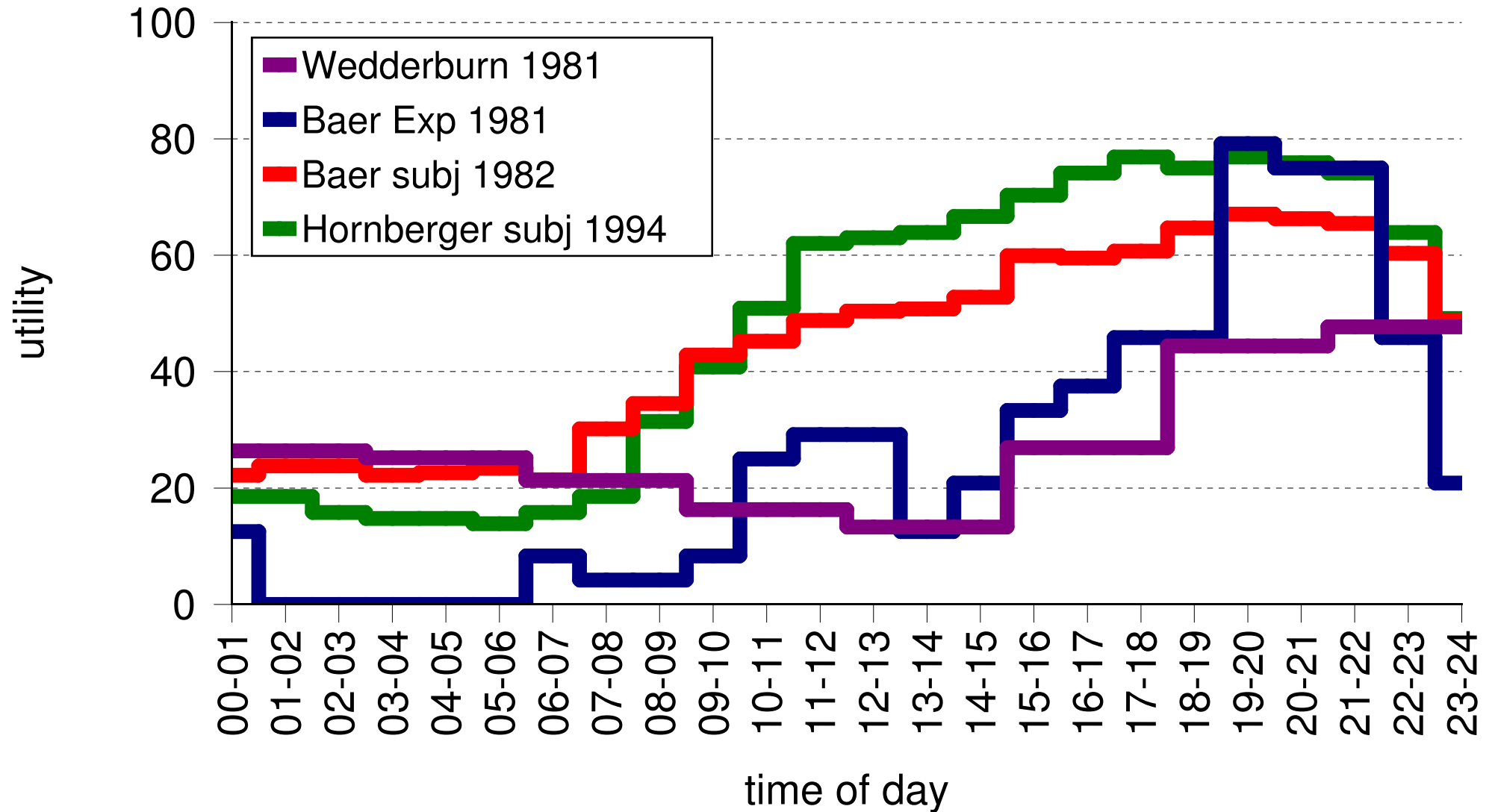
- ✓ So are the hours of a day not of the same value ?

available results

- ✓ 1981 Wedderburn, UK, subjective ratings
- ✓ 1981 Baer et al., FRG, expert ratings
- ✓ 1982 Baer, FRG, subjective ratings
- ✓ 1994 Hornberger, FRG, subjective ratings

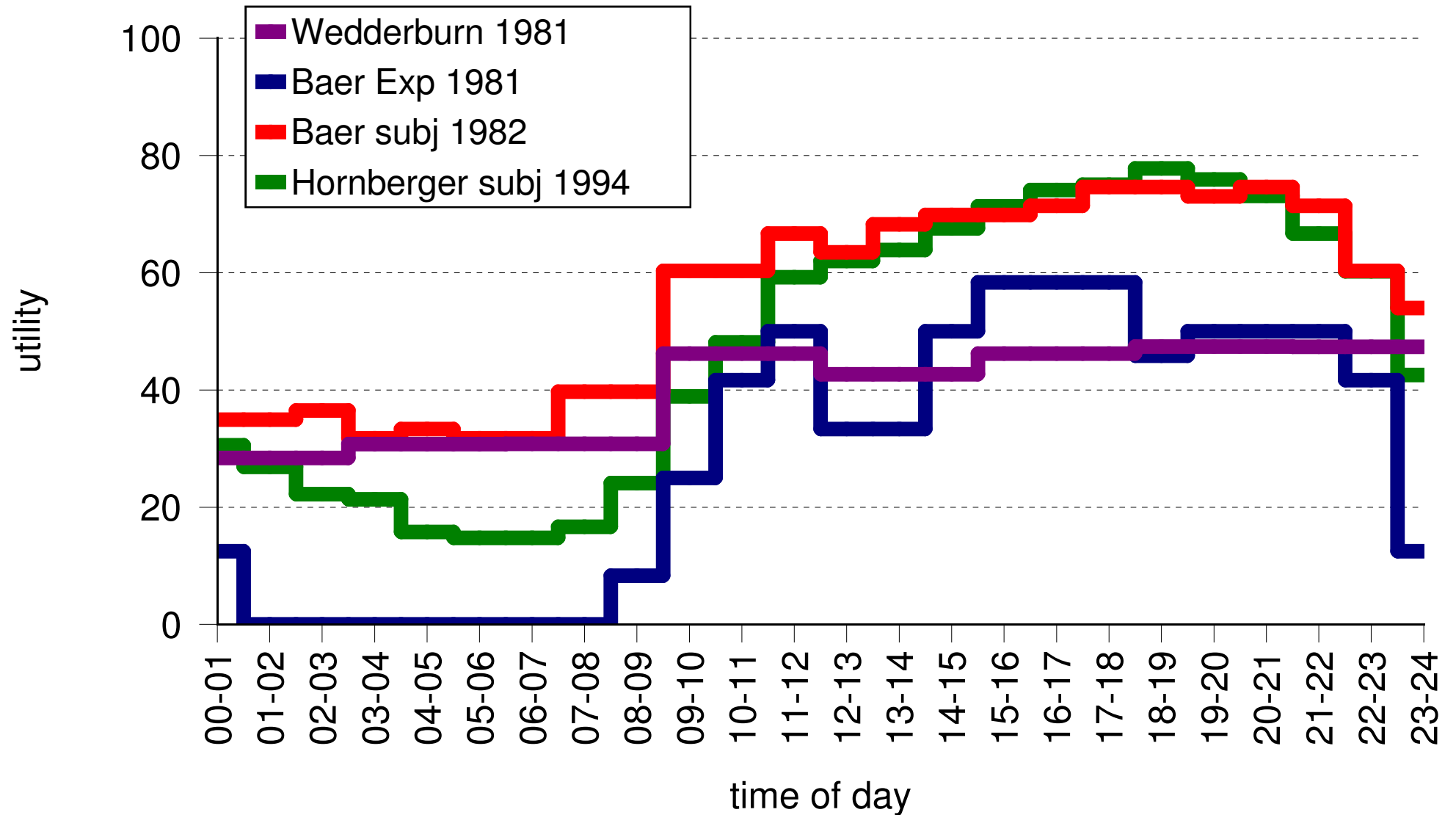
Utility of time

Monday - Thursday

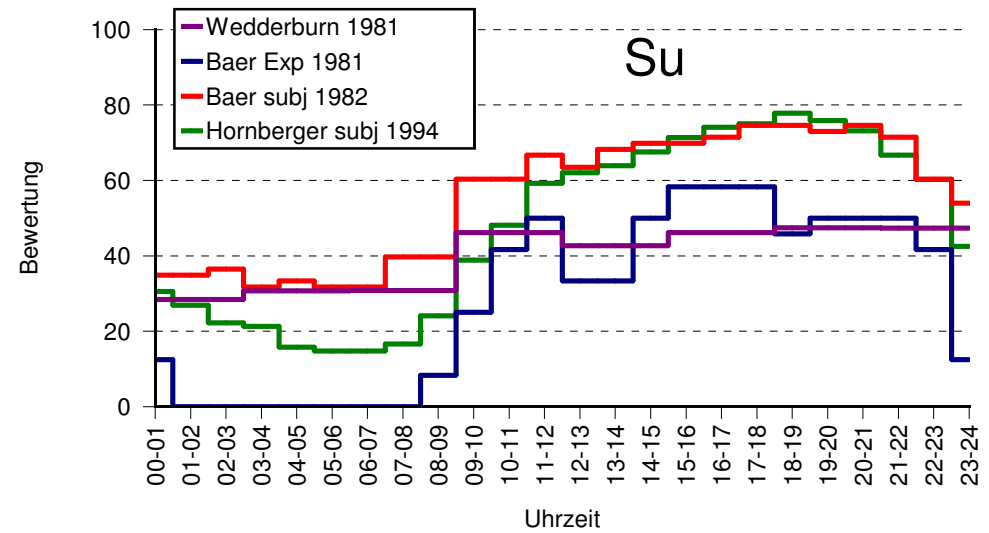
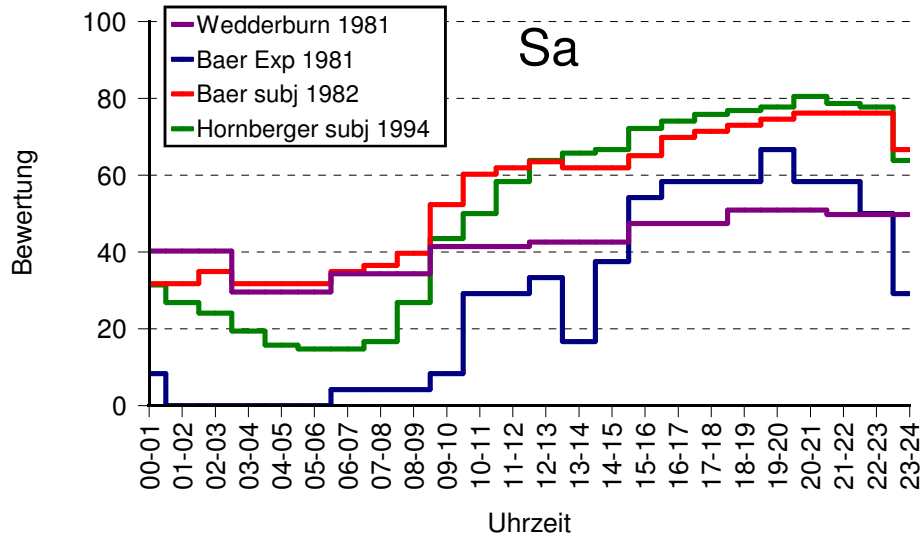
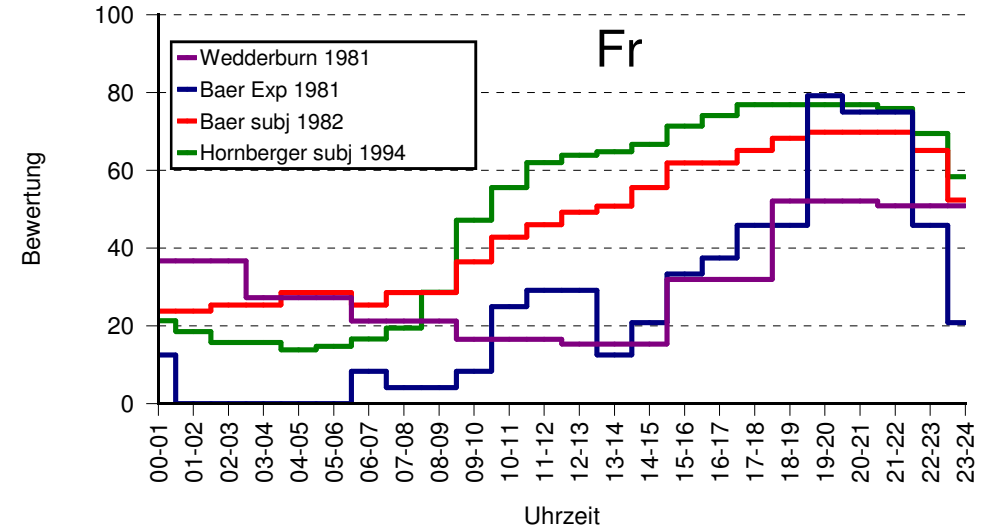
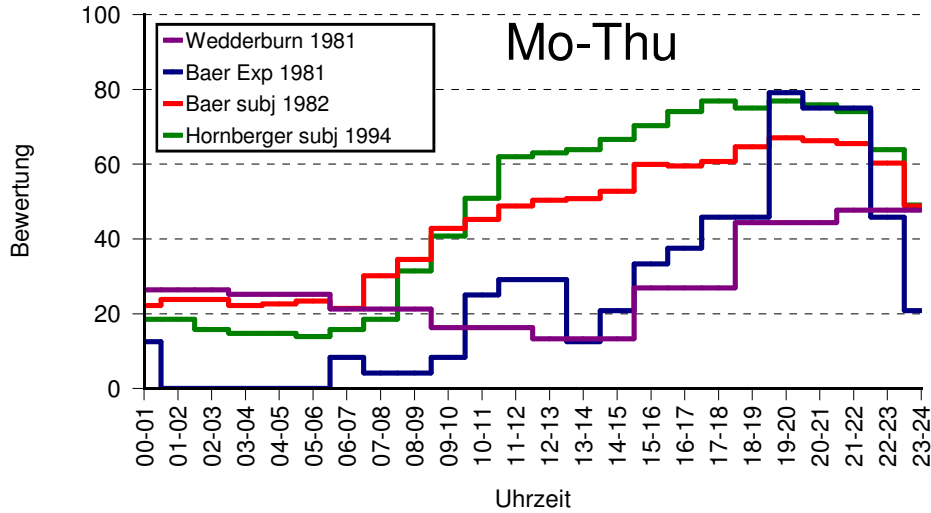


Utility of time

Sunday



Comparing the days of the week



But is this still so ?

Has that changed ? is this a stable result ?

- ✓ Results date back to 25 years ago
- ✓ Social change
 - ✓ trend towards a 7 x 24 society
 - ✓ rock around the clock
 - ✓ can such changes be investigated ?
- ✓ If we want to use this for evaluating work schedules, more recent data are required

Possible changes

- ✓ General increase in utility
 - ✓ more offers, more activities available

- ✓ Increase of utility at certain times
 - ✓ e.g. certain days of the week
 - ✓ approaching the utility of weekends

- ✓ Reduced amplitude of the rhythm
 - ✓ everything goes anytime

- ✓ (near to) complete loss of the rhythm
 - ✓ fading out / suppression / noise
 - ✓ loss of the normative structure of time

Methods (study 1)

- ✓ paper based survey
- ✓ n = 250 persons
- ✓ from different sectors:
 - ✓ service sector
 - hospital
 - call-center
 - ✓ production sector
 - chemical industry
 - food industry
- ✓ students

Completed questionnaire (Thursday)

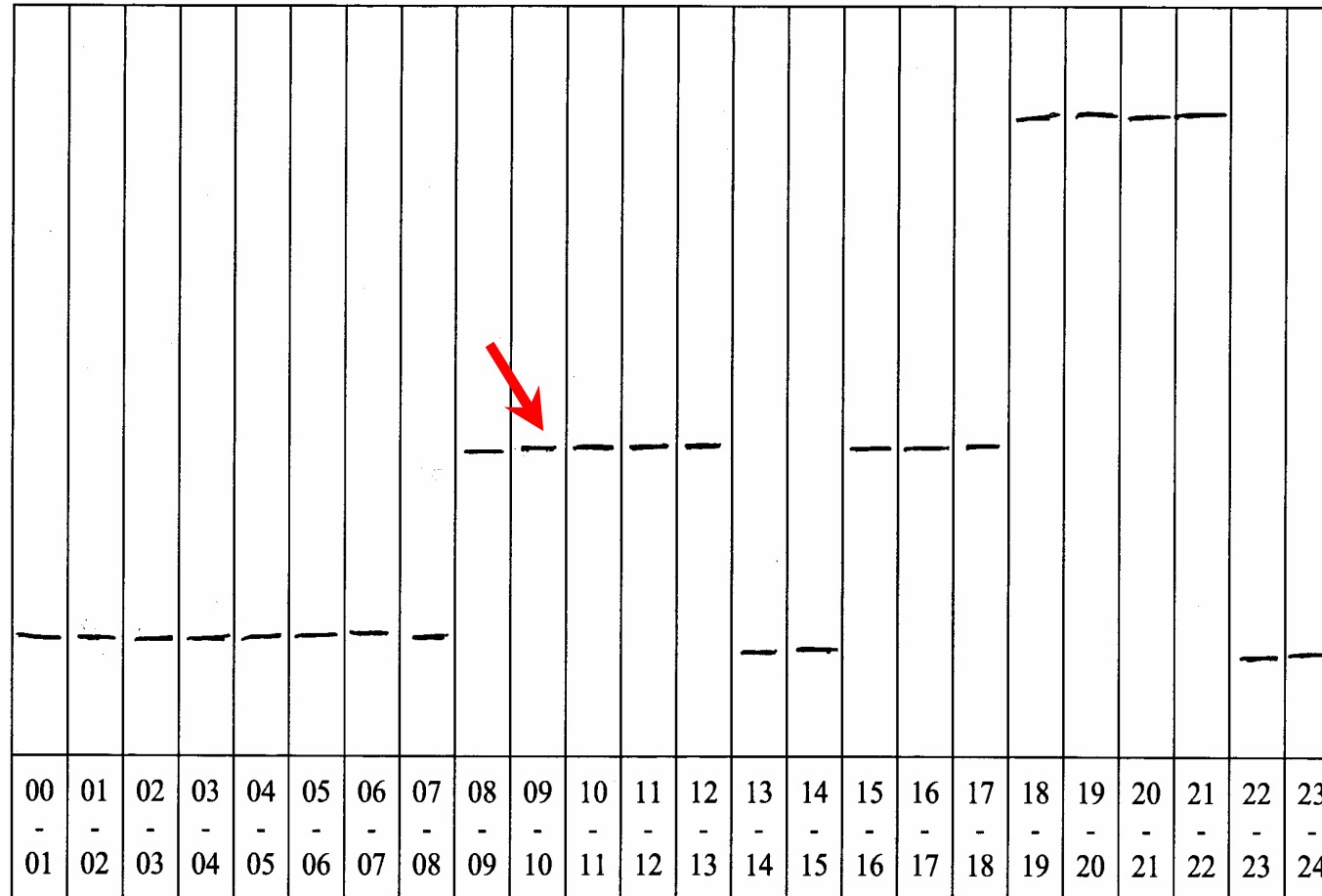
Donnerstag

very
valuable
sehr wertvoll

this hour is
for me

Diese Stunde ist
für mich

weniger wertvoll
less
valuable



sehr wertvoll

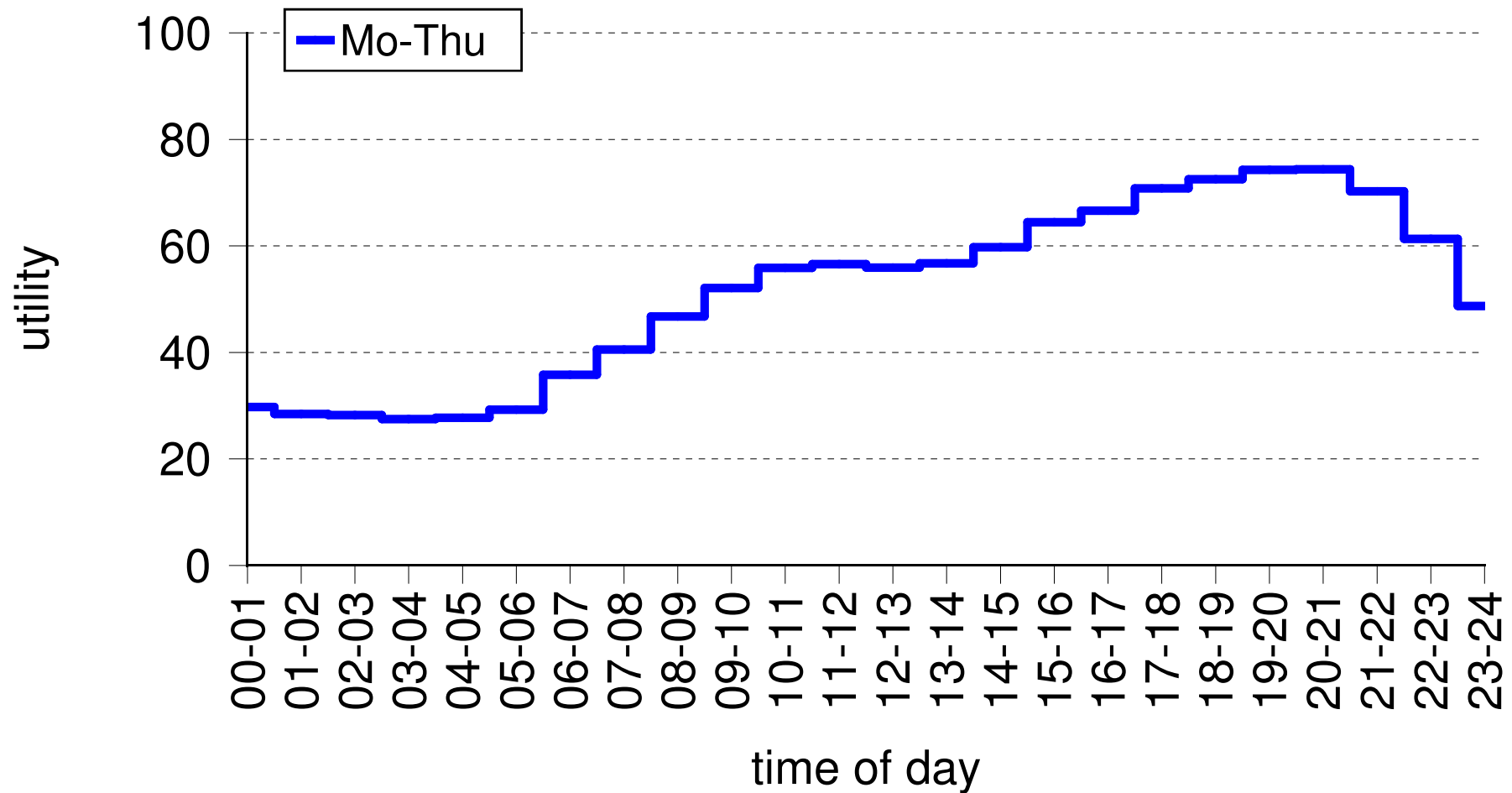
Diese Stunde ist
für mich

weniger wertvoll

Stunden des Tages
von – bis Uhr

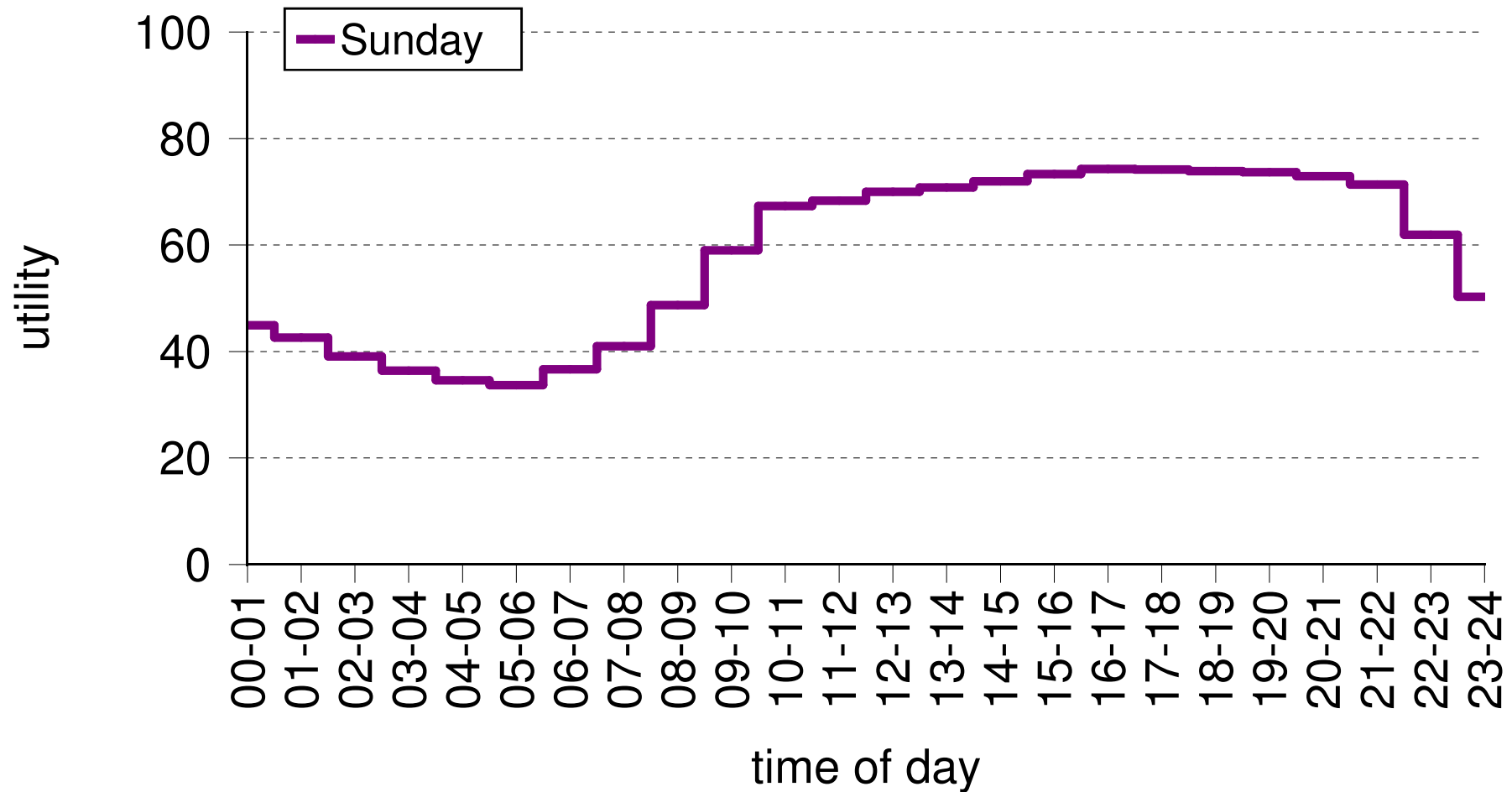
Utility of time 2005 - workdays

Hinnenberg 2005

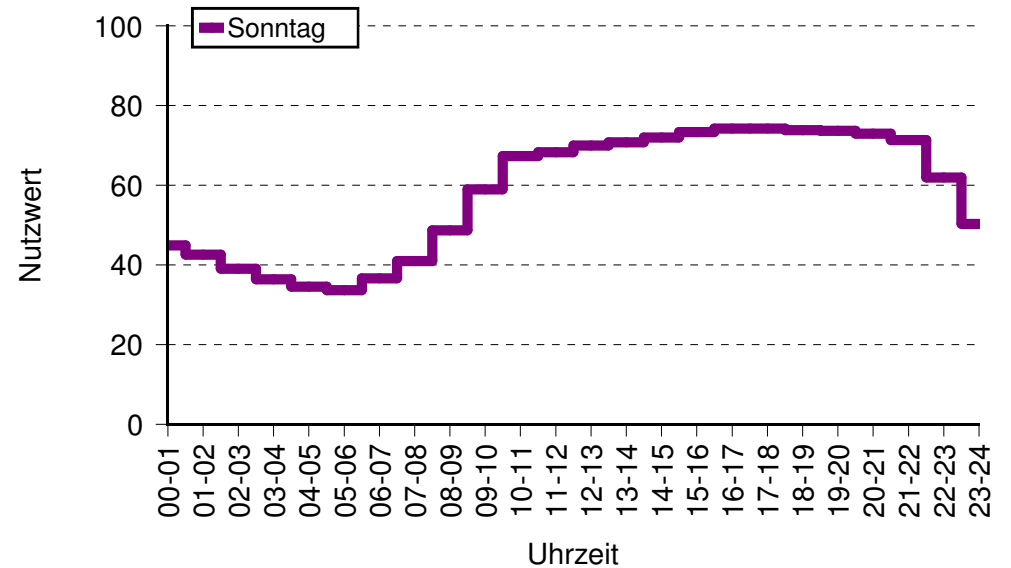
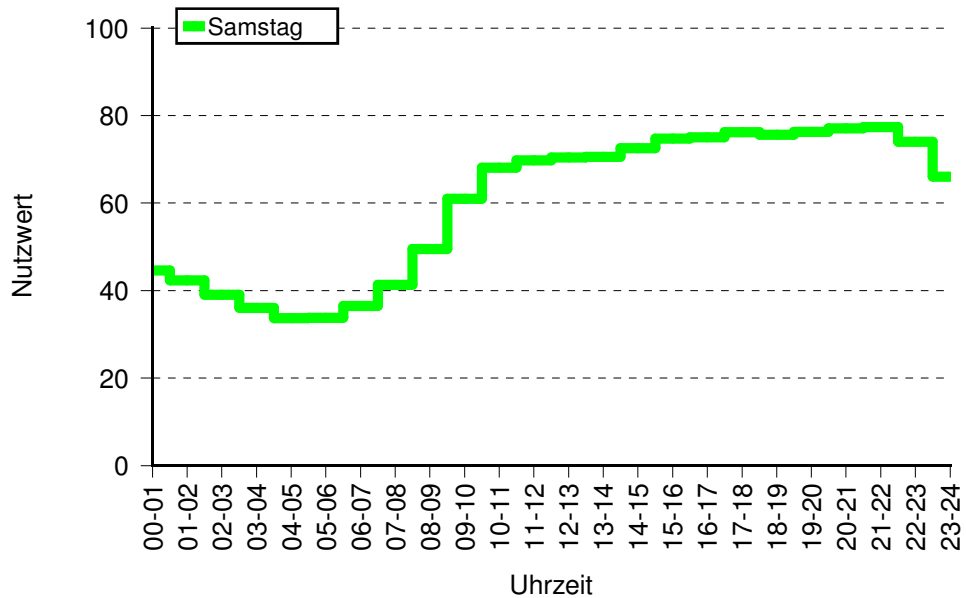
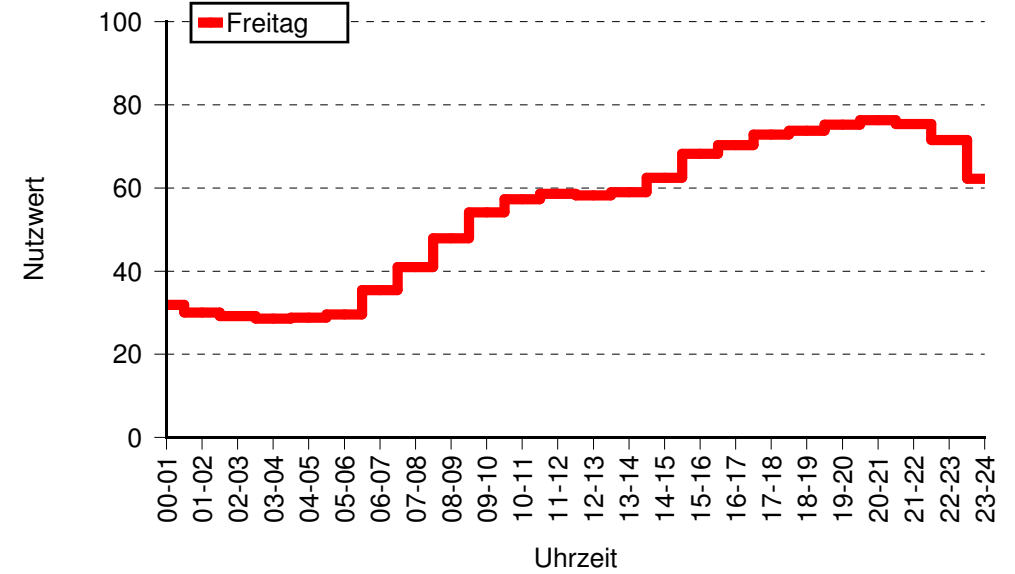
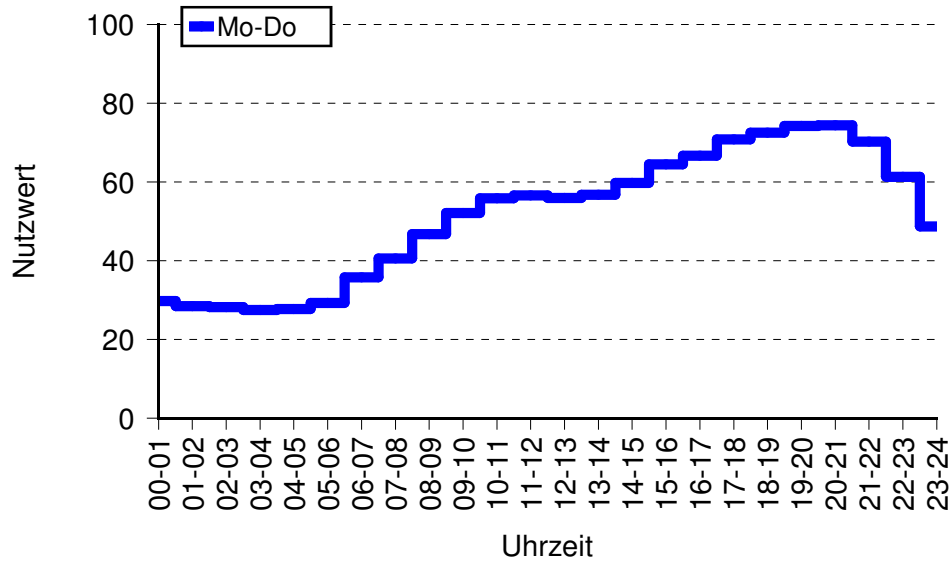


Utility of time 2005 - weekend day

Hinnenberg 2005

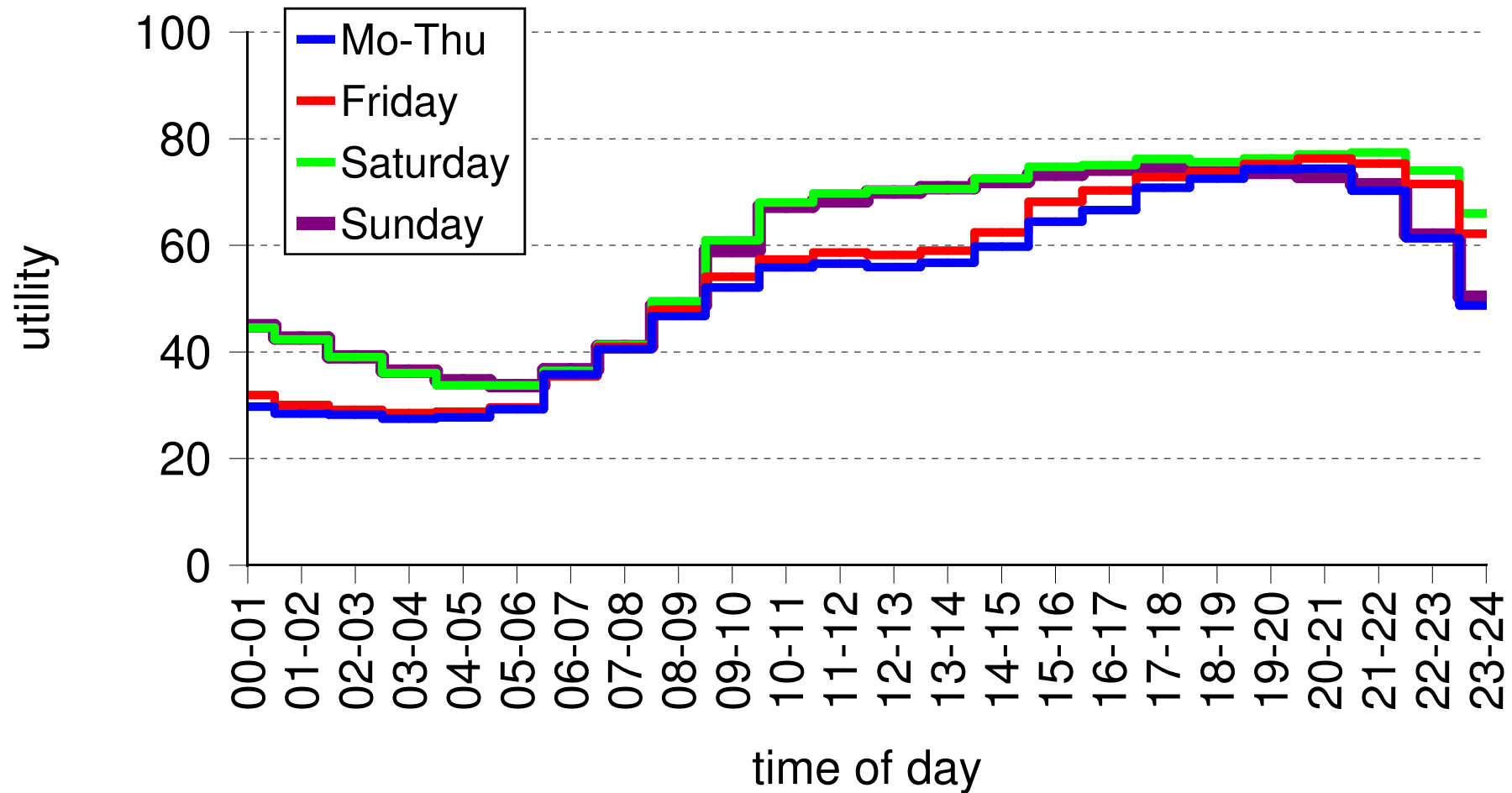


Utility of time 2005, comparing the days of the week

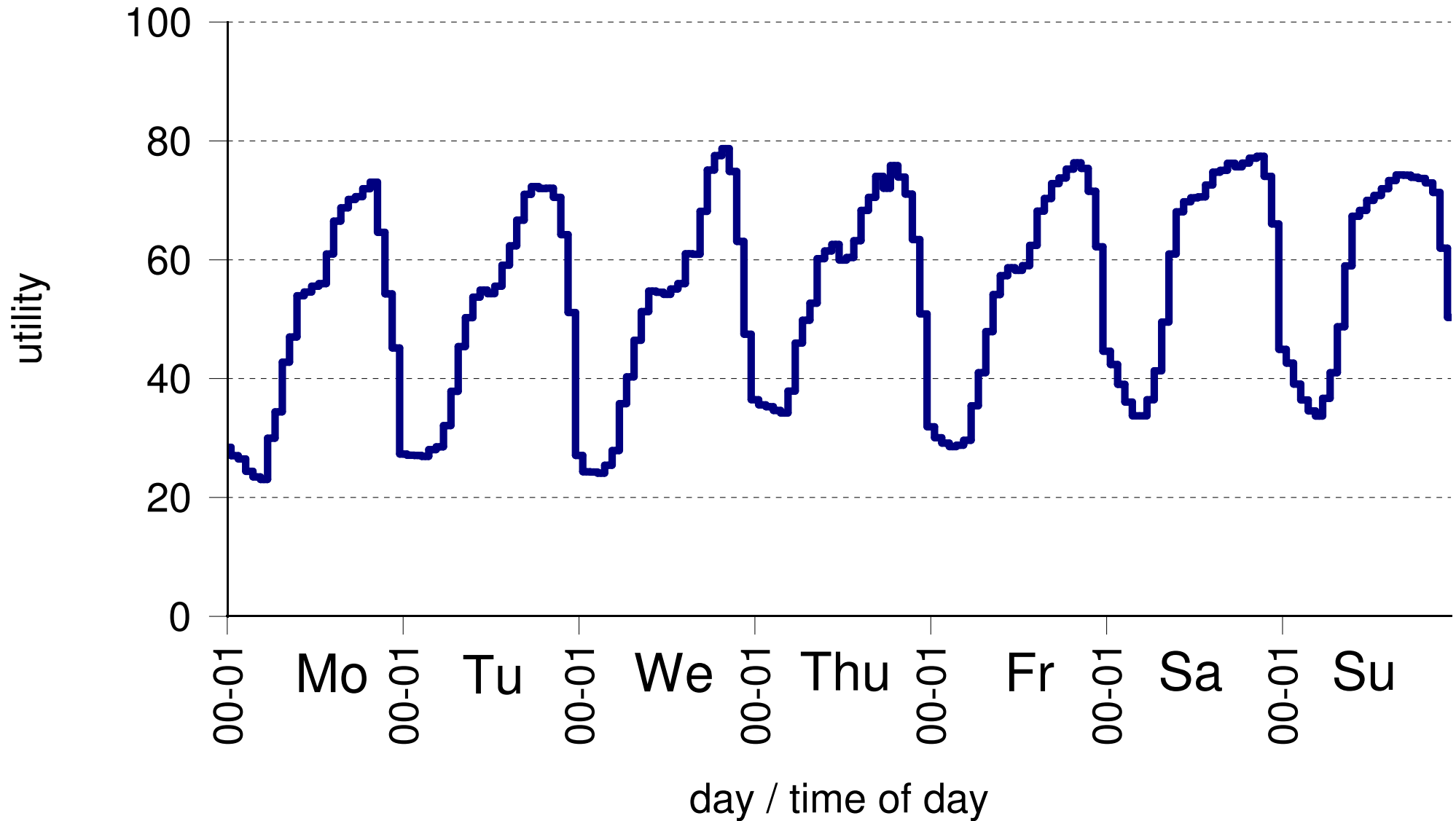


Utility of time 2005, comparing the days of the week

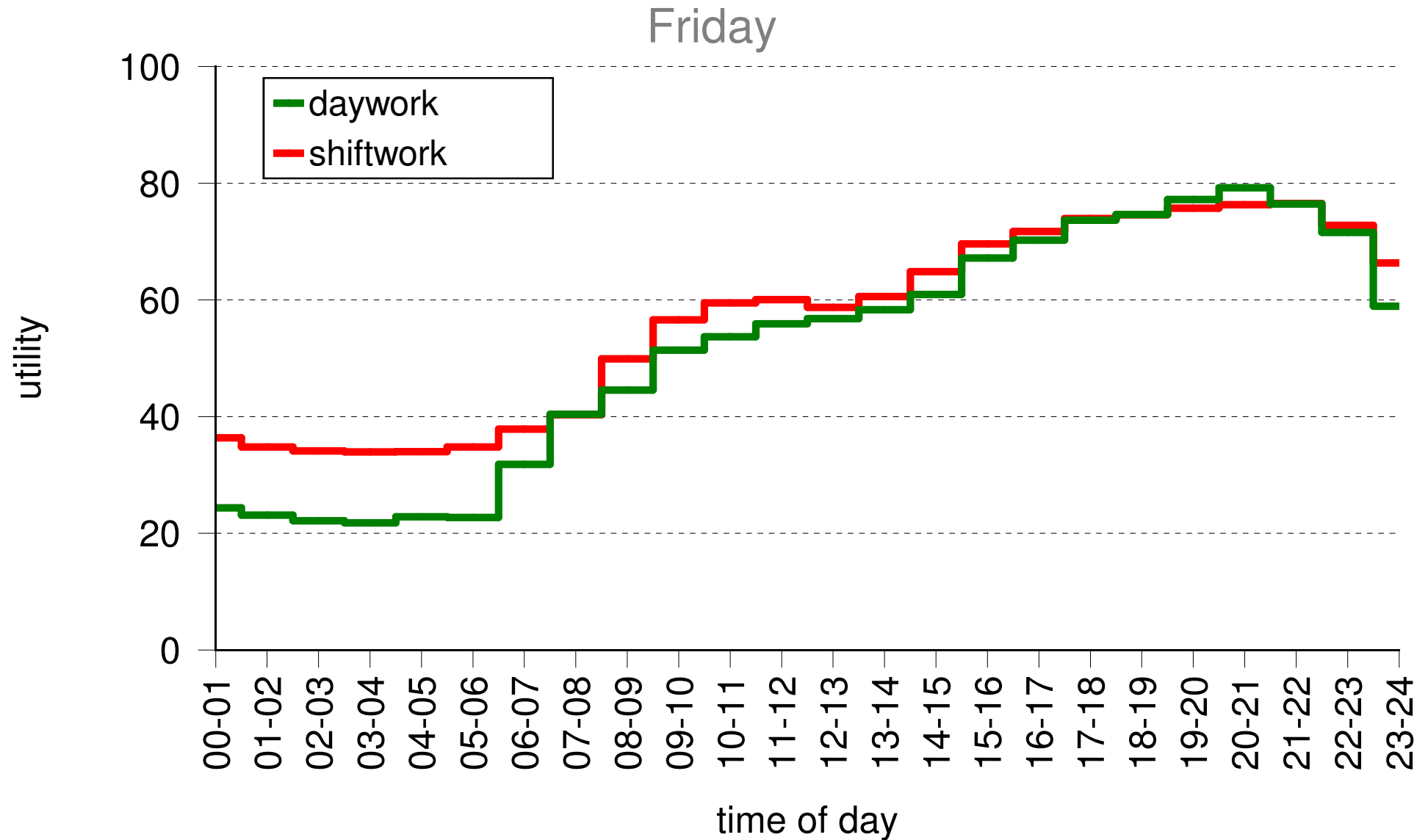
Hinnenberg 2005



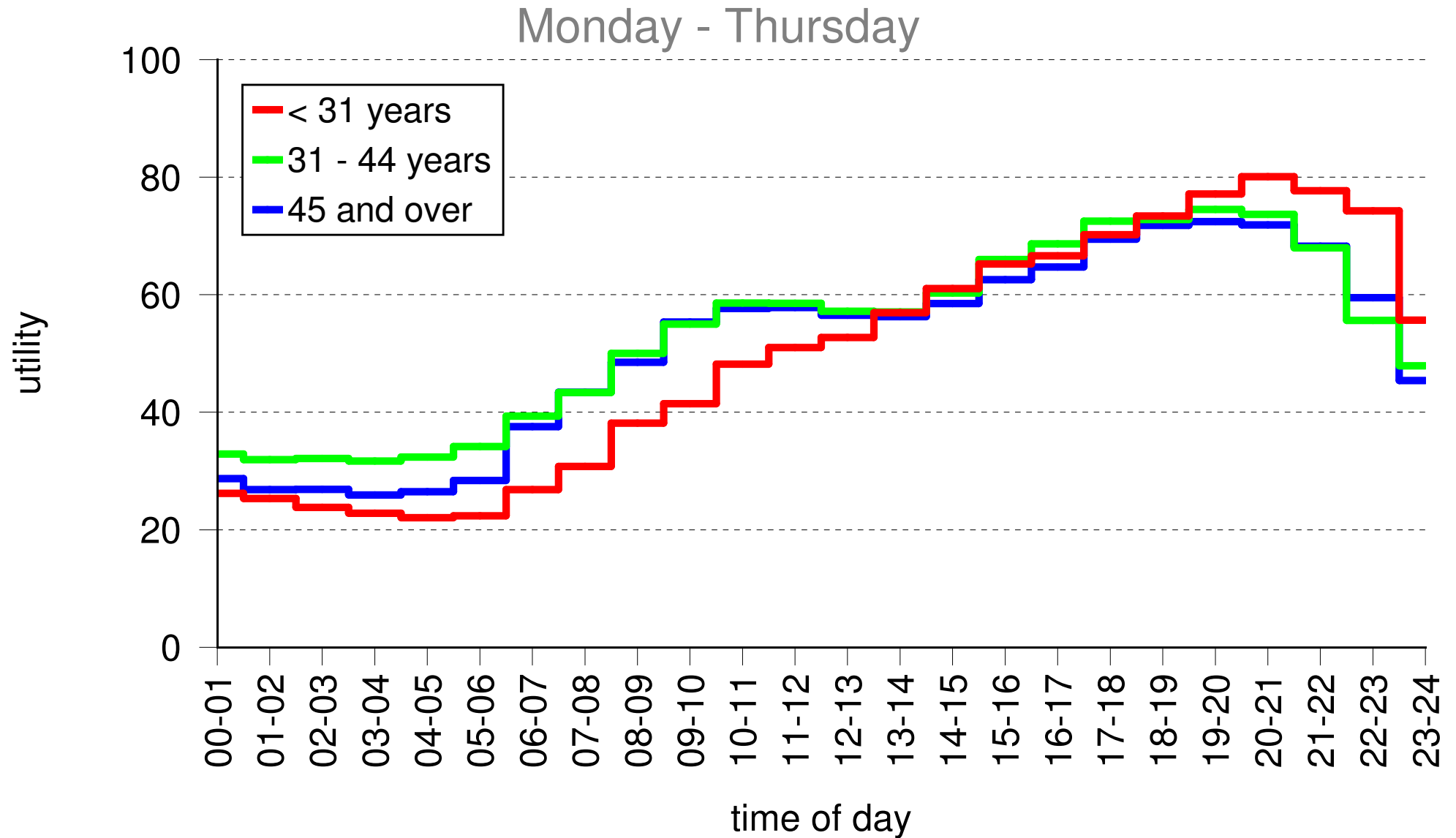
Utility of time 2005, across the week



Daywork vs shiftwork

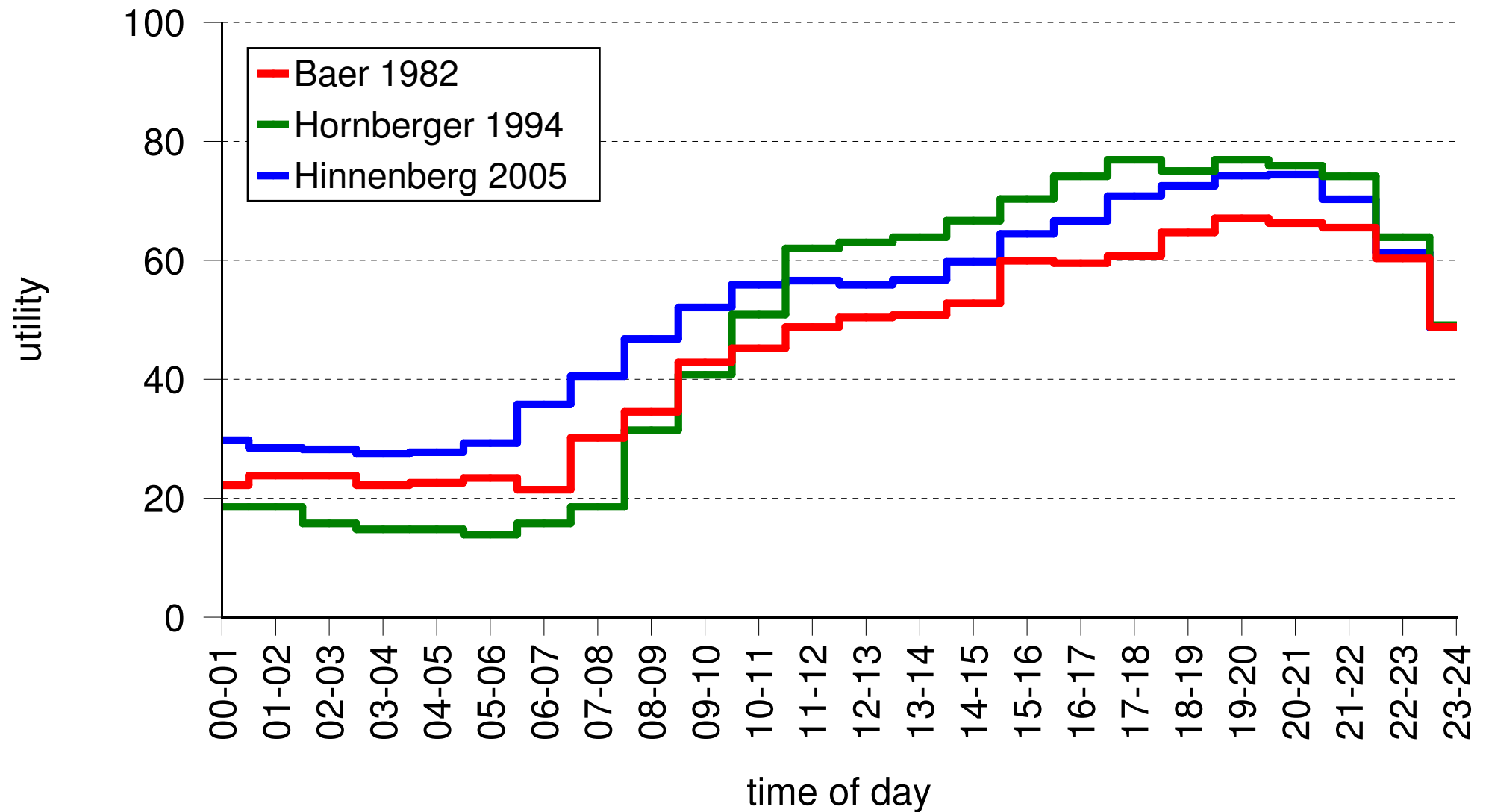


Utility as a function of age

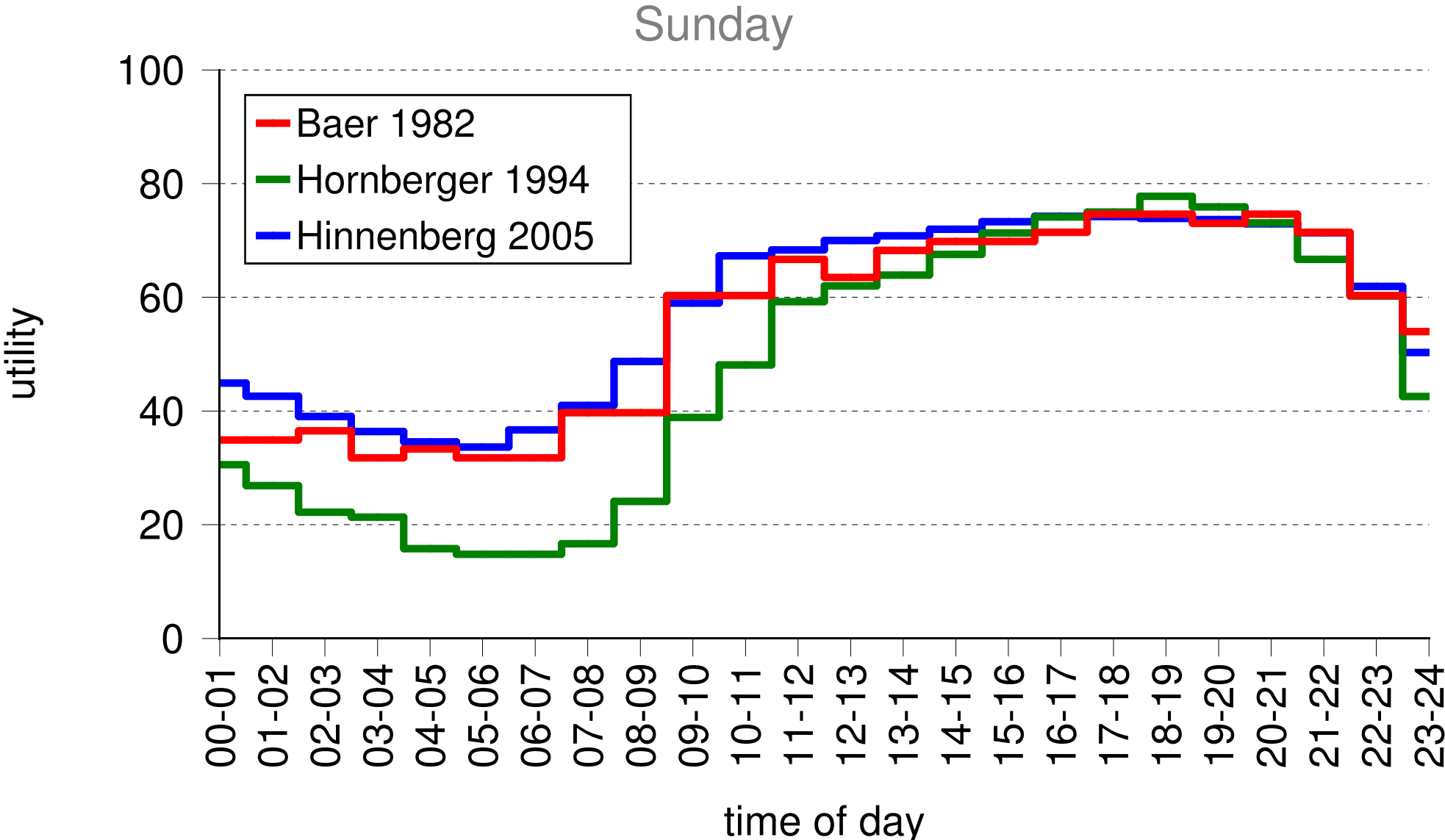


Utility of time, from 1982 to 2005

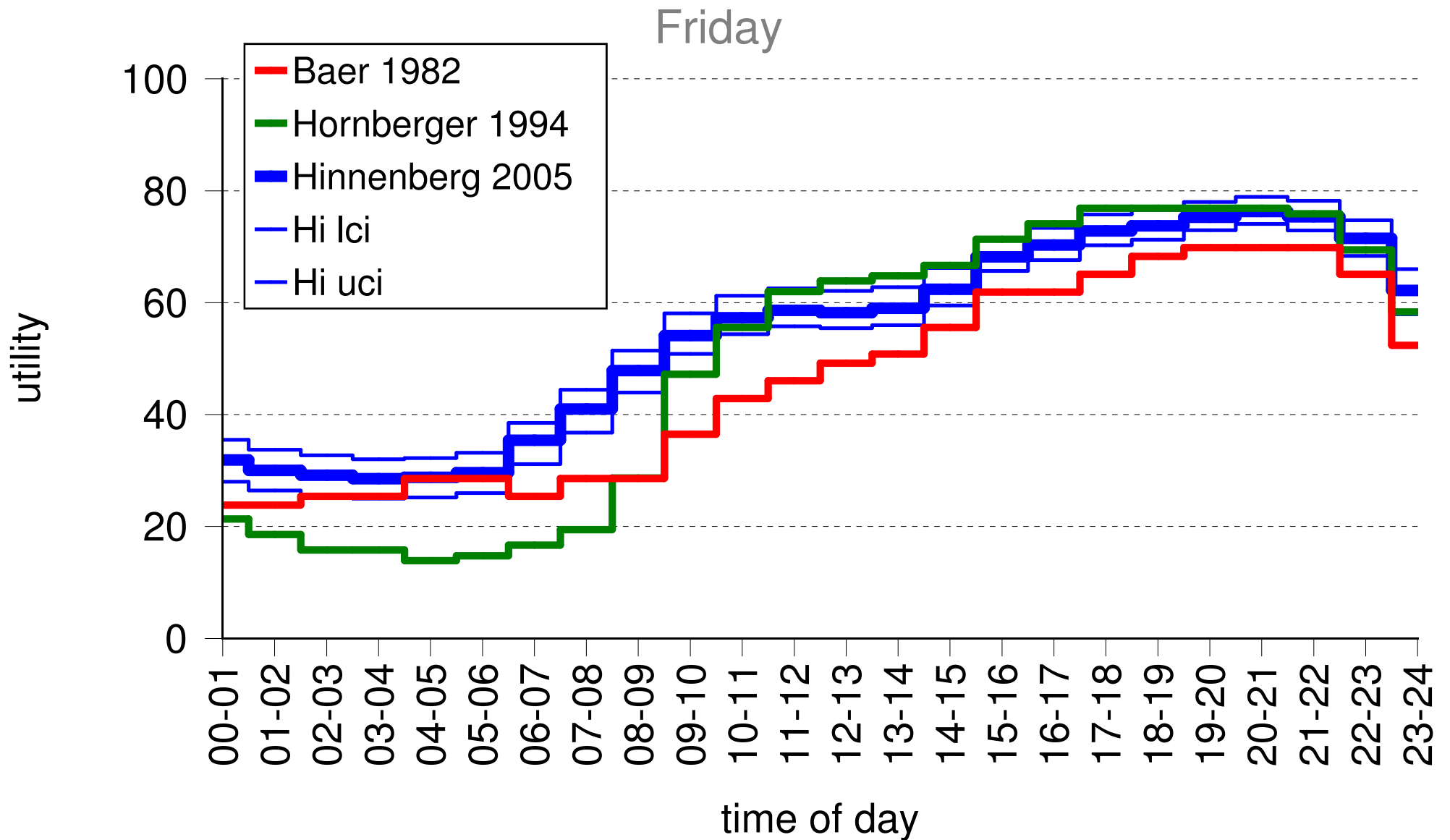
Monday - Thursday



Utility of time, from 1982 to 2005

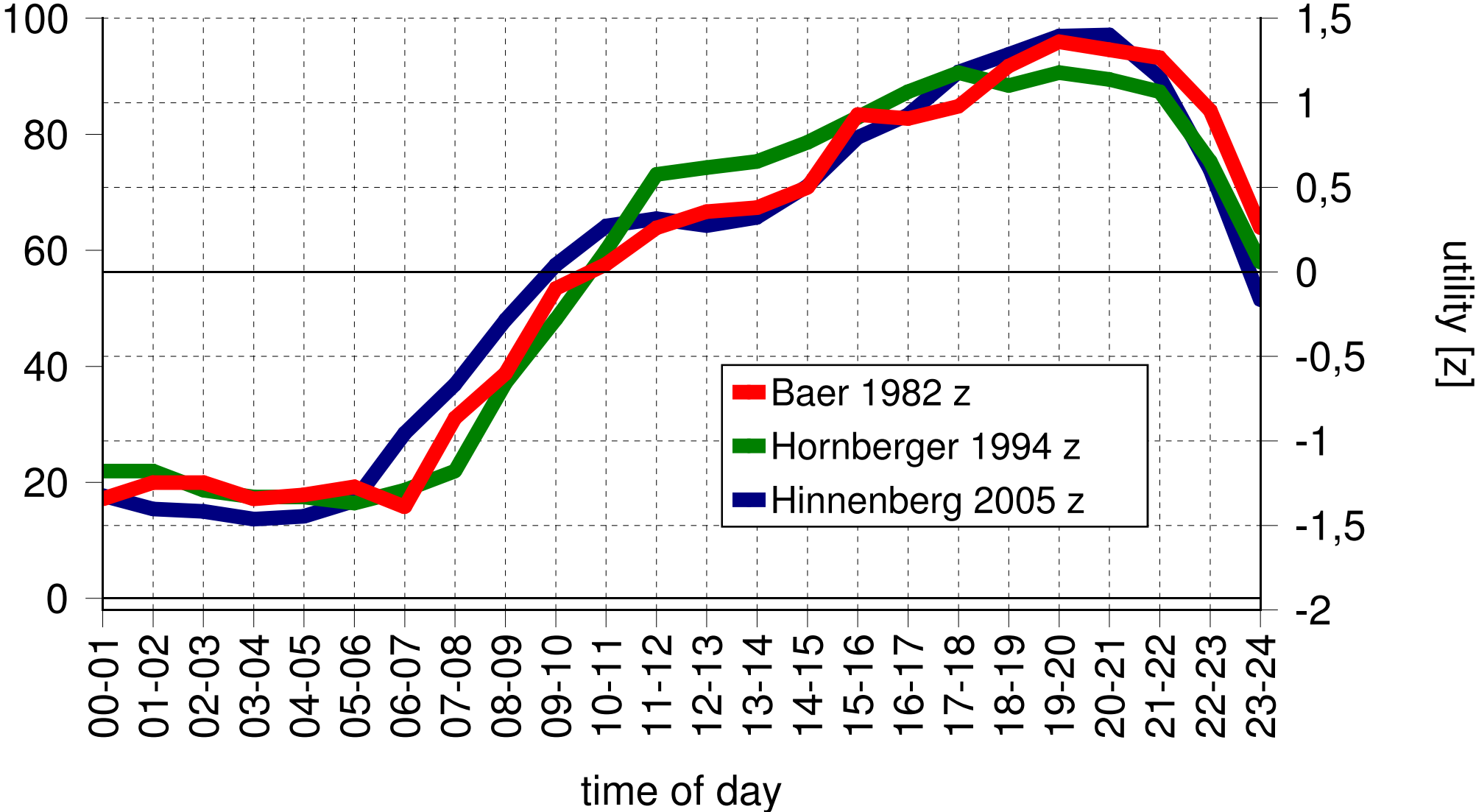


Utility of time, from 1982 to 2005



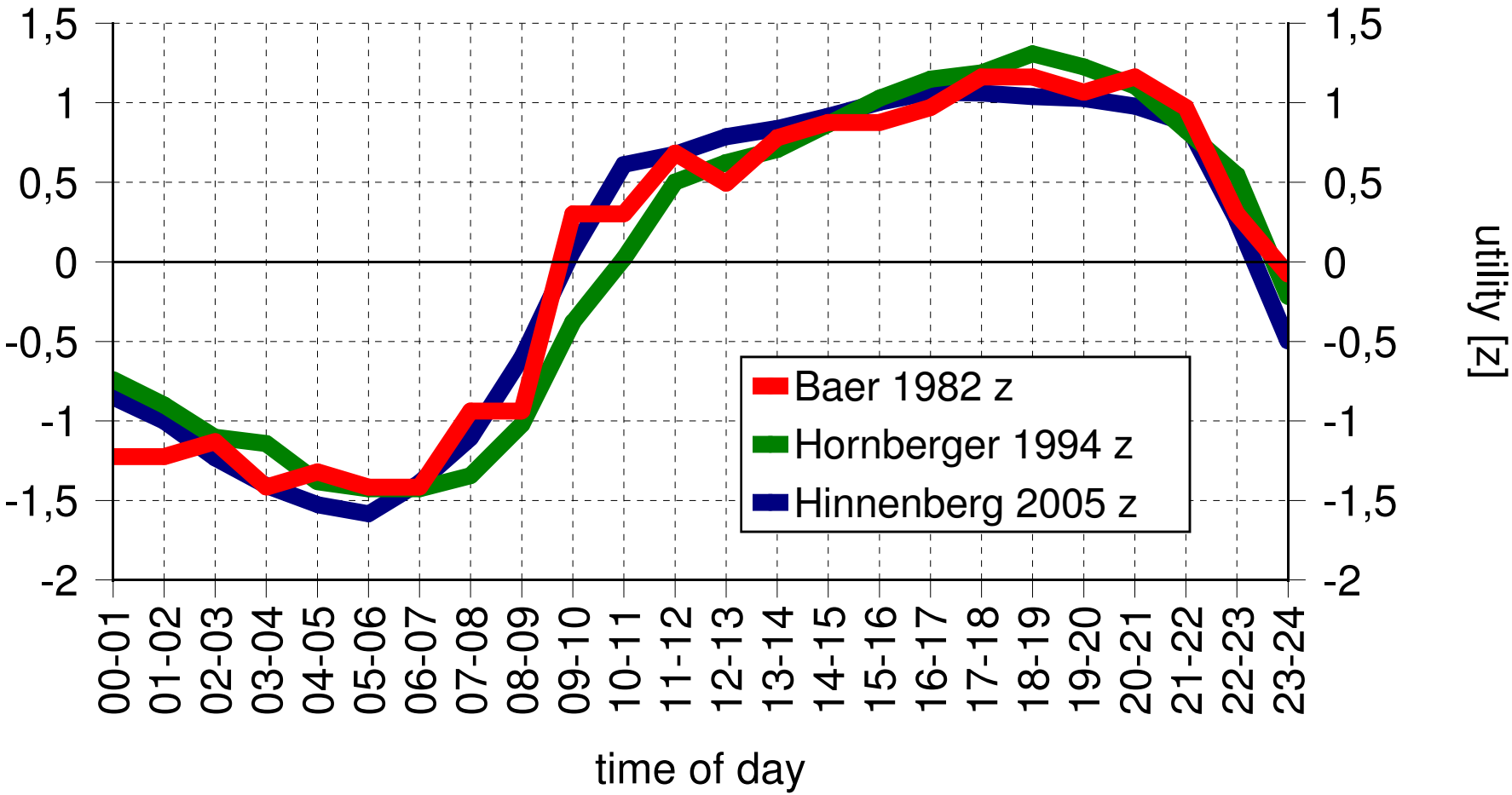
Utility of time, from 1982 to 2005 z-standardised

Monday - Thursday



Utility of time, from 1982 to 2005 z-standardised

Sunday



Methods (study 2)

- ✓ internet based survey
- ✓ accesible on the web via our homepages
- ✓ data collection from 2007-04-11 until 2007-06-28 for this analysis,
data collection still going on
- ✓ n = 906 persons
 - ✓ from 1033 completed questionnaires
 - ✓ from 2217 reported contacts
- ✓ from different sectors
- ✓ from different regions
- ✓ different educational background
- ✓ different organizational levels

Example



6%

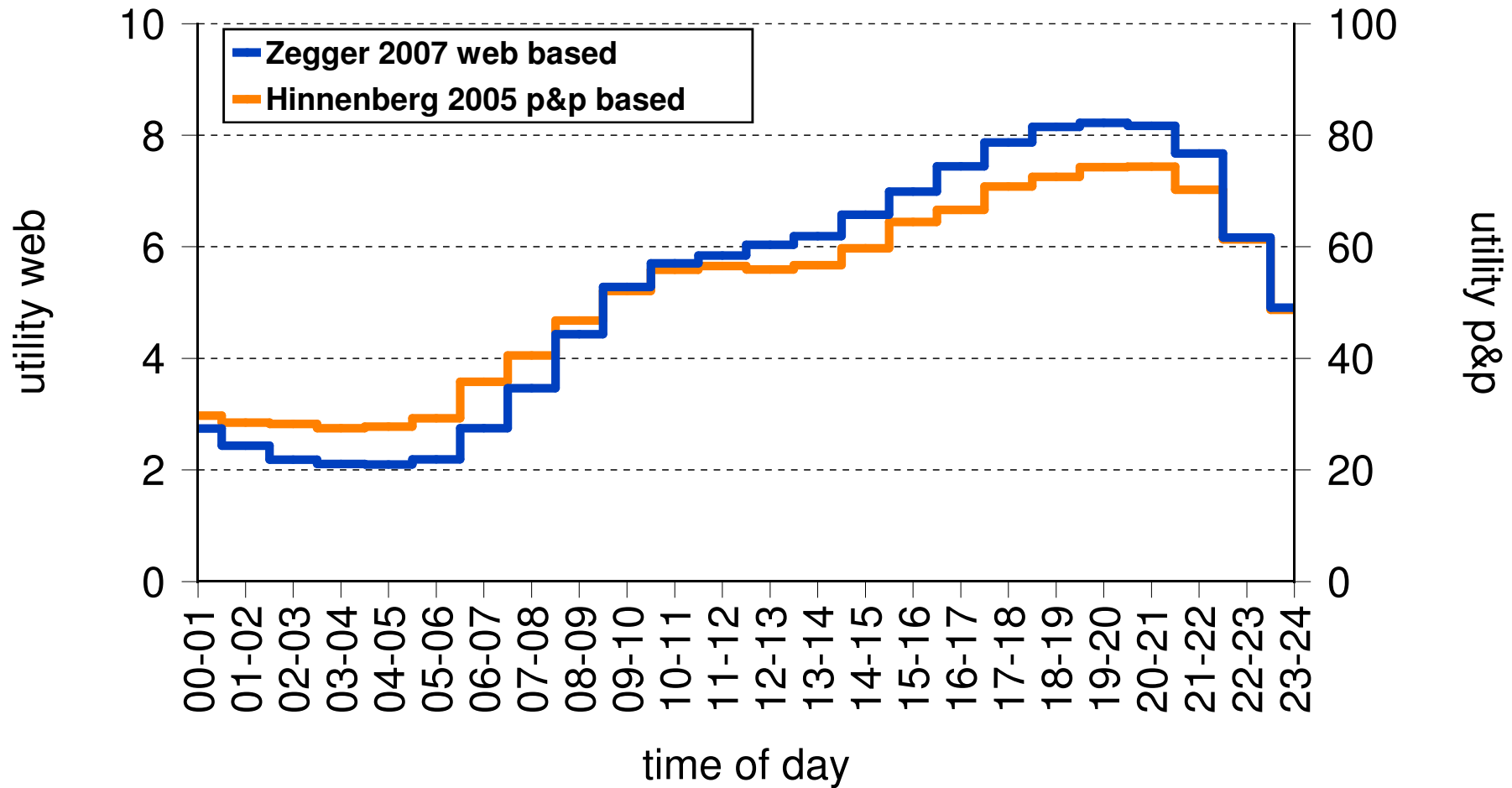
Wie schätzen Sie die Nutzbarkeit von freien Stunden am **Montag** ein?

Bitte geben Sie in jeder Zeile durch eine Markierung ("Punkt") an, für wie wertvoll Sie die jeweilige Stunde im Hinblick auf mögliche Freizeitbeschäftigungen halten.

	wenig wertvoll							sehr wertvoll		
00:00-01:00 Uhr	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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02:00-03:00 Uhr	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
03:00-04:00 Uhr	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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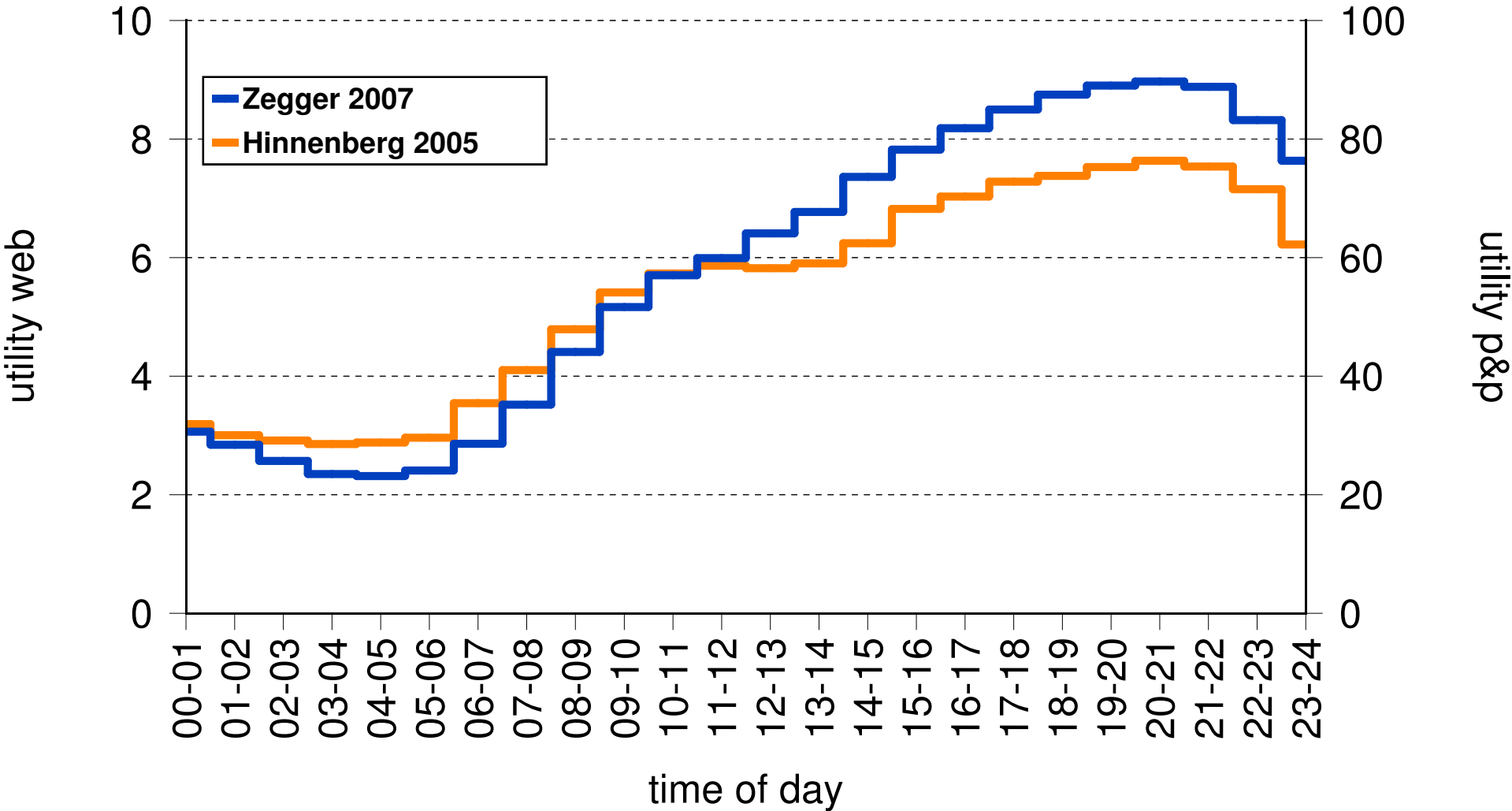
Comparing results

Monday - Thursday

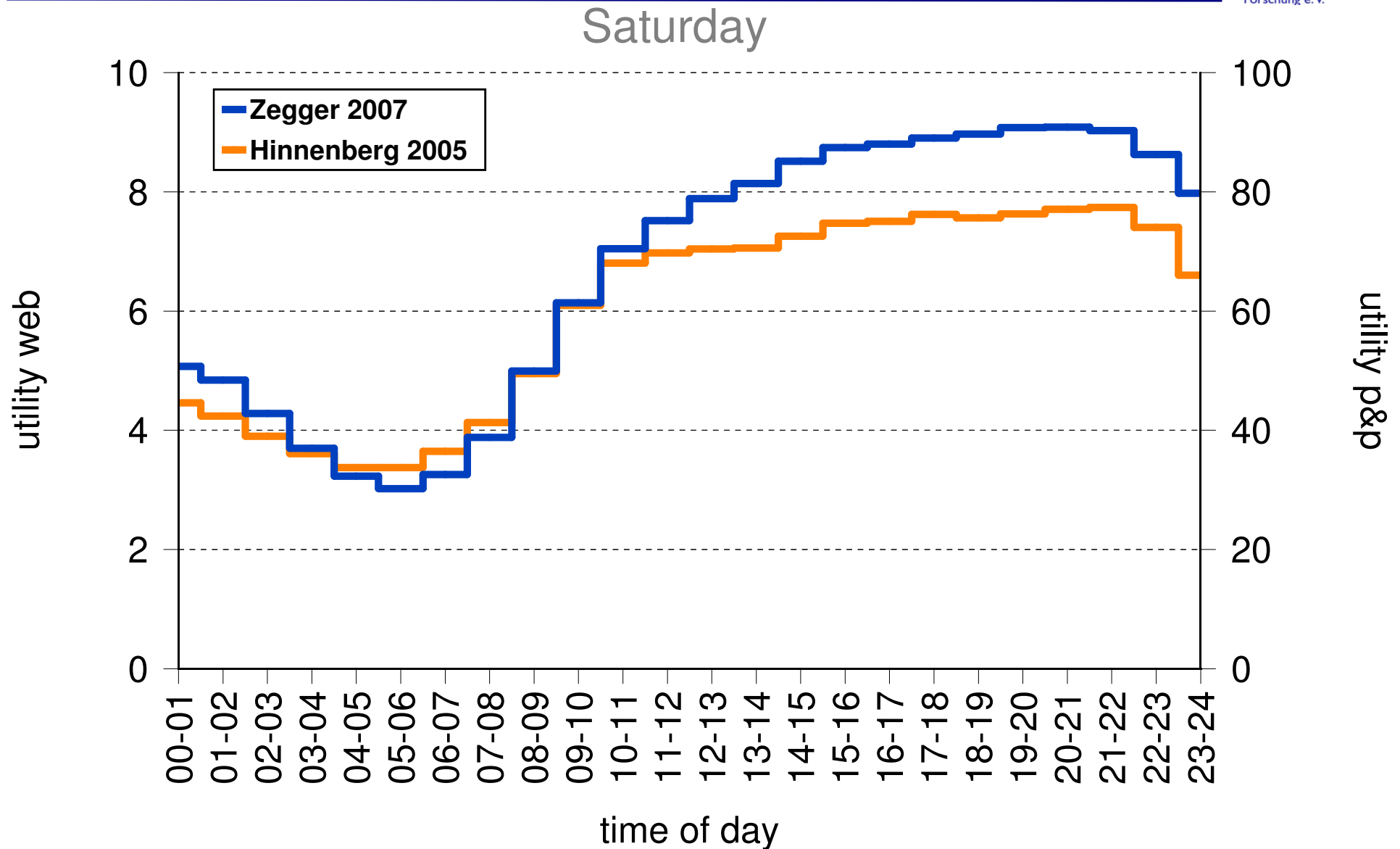


Comparing results

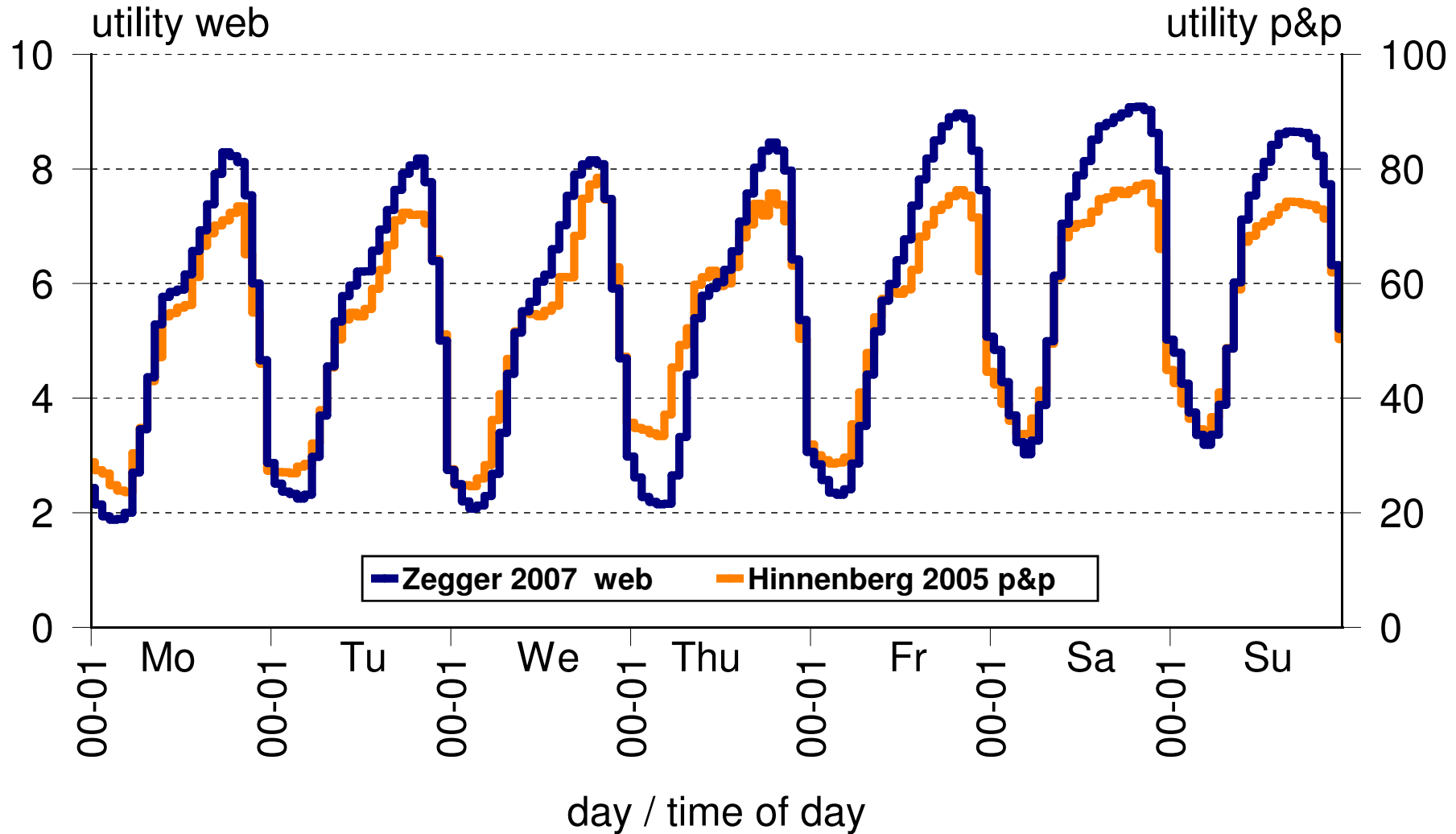
Friday



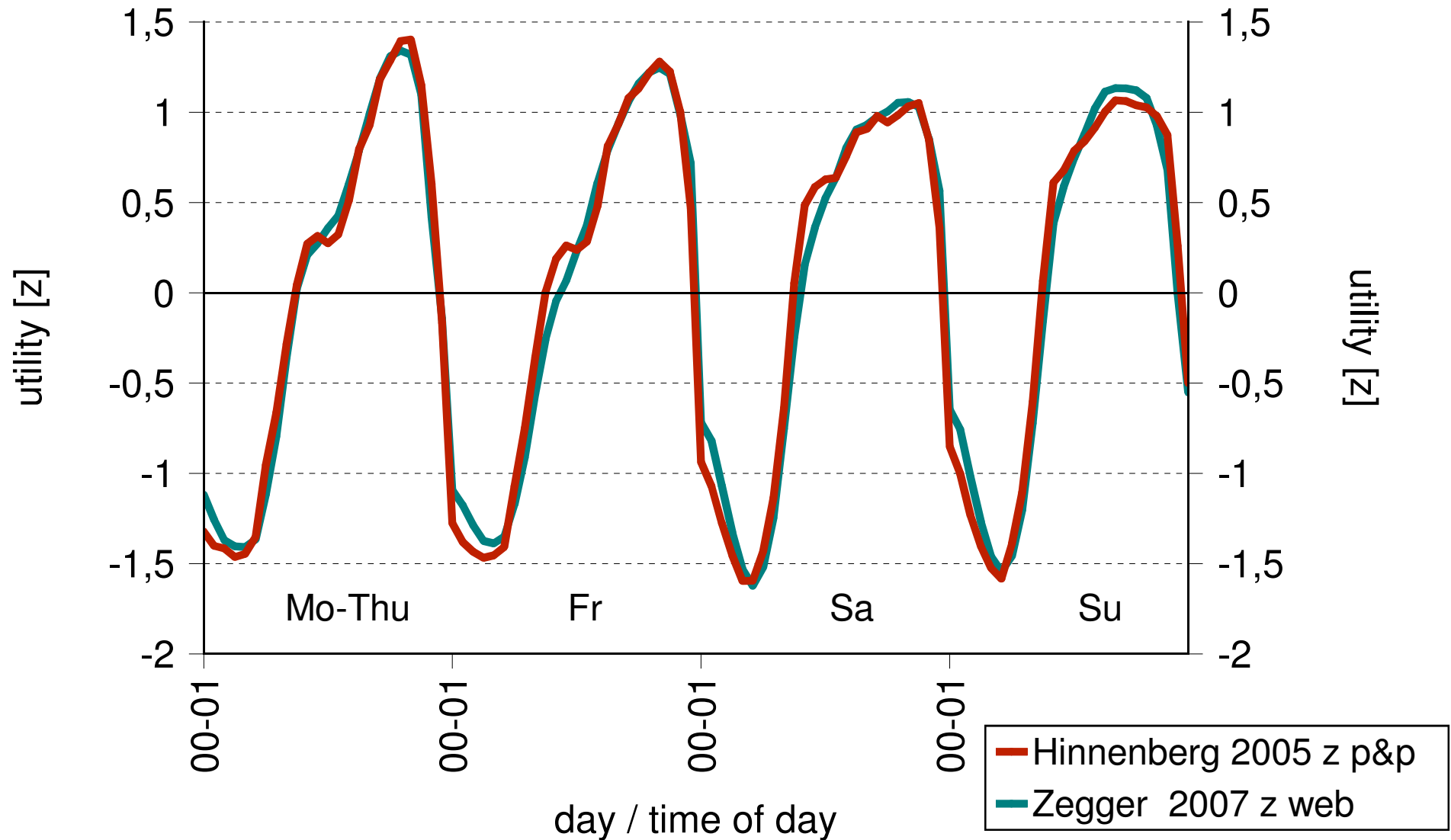
Comparing results



Utilities of time across the week, p&p vs. web

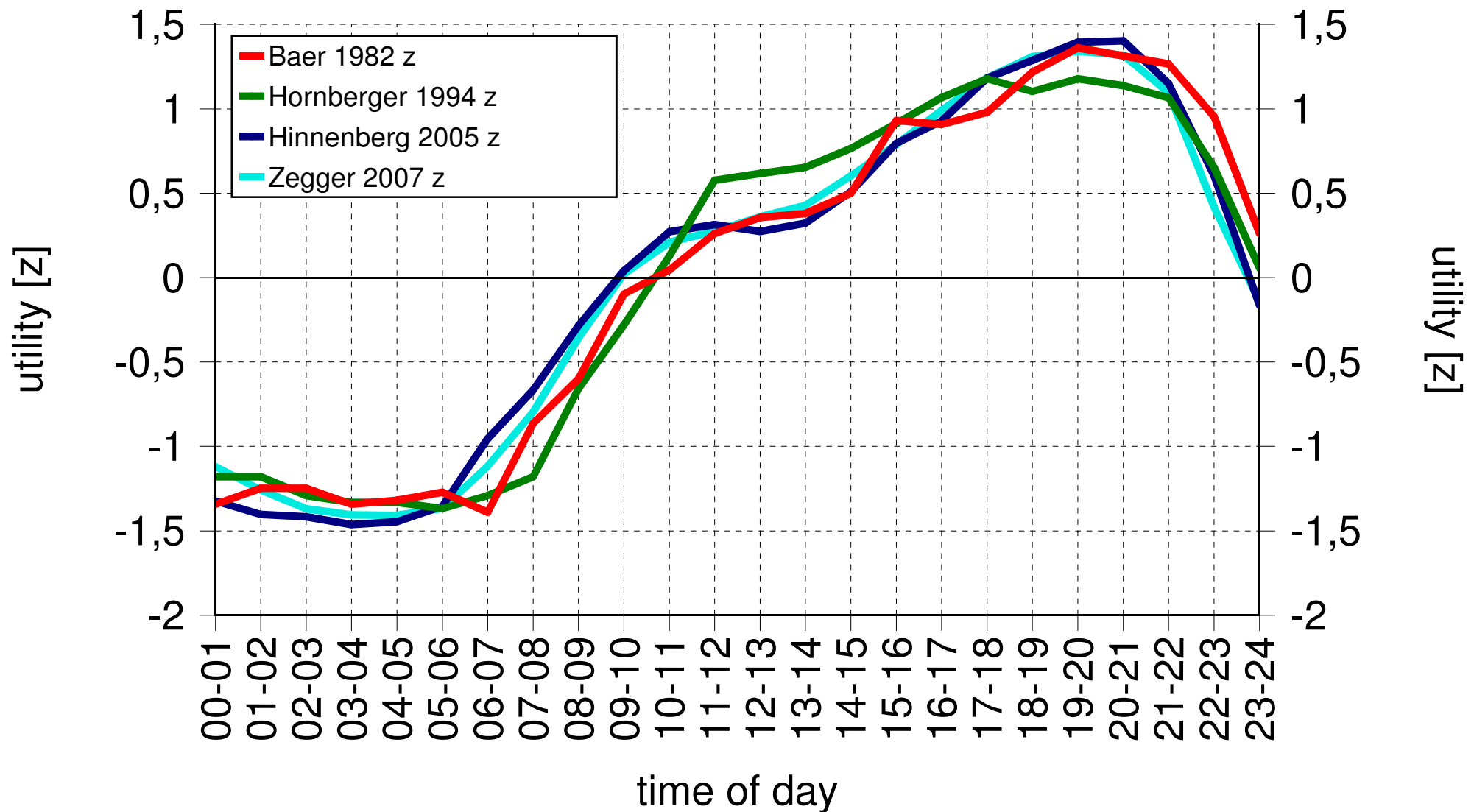


Comparing p&p and web based utilities

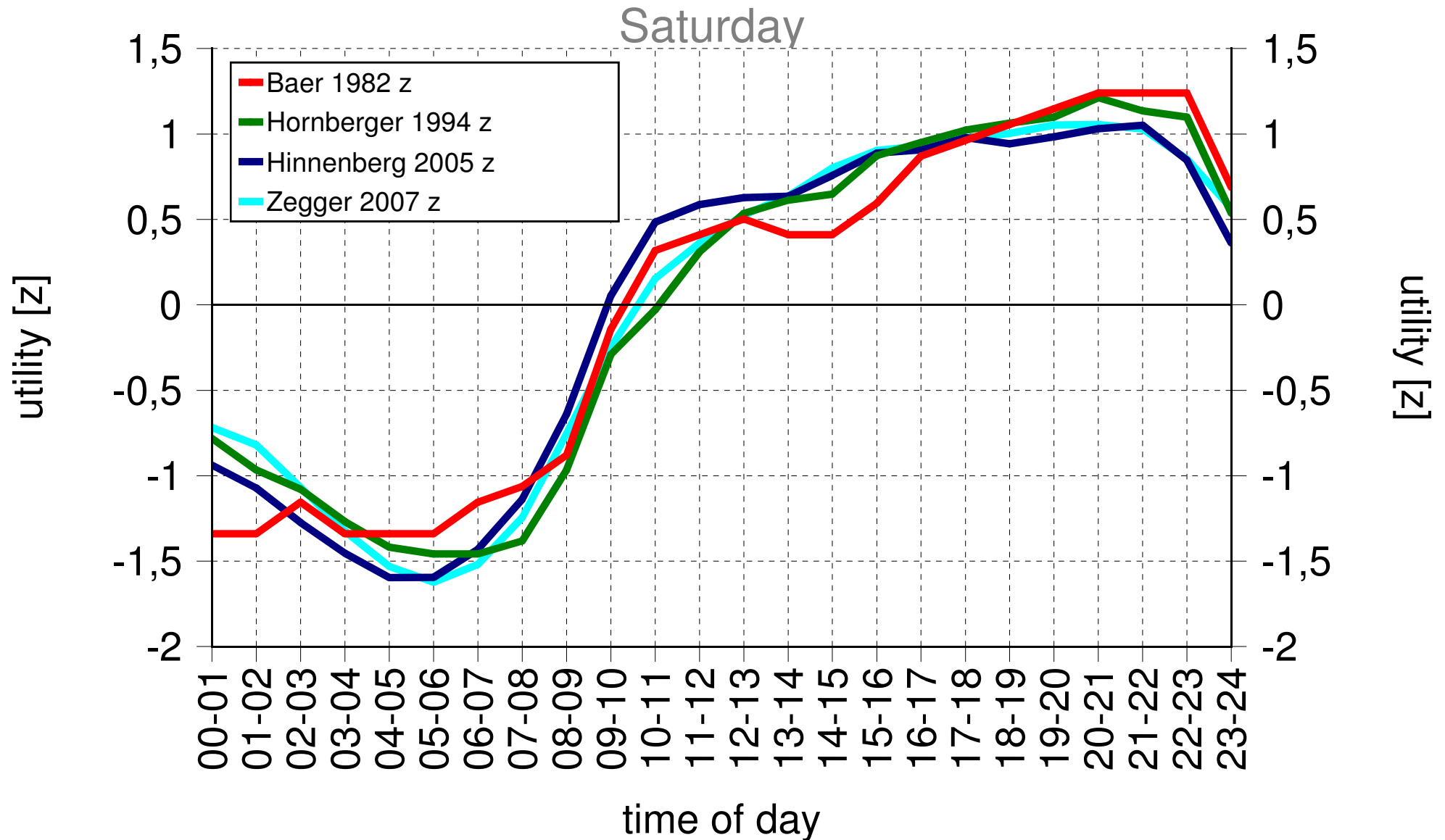


Utility of time across 25 years, z-standardized

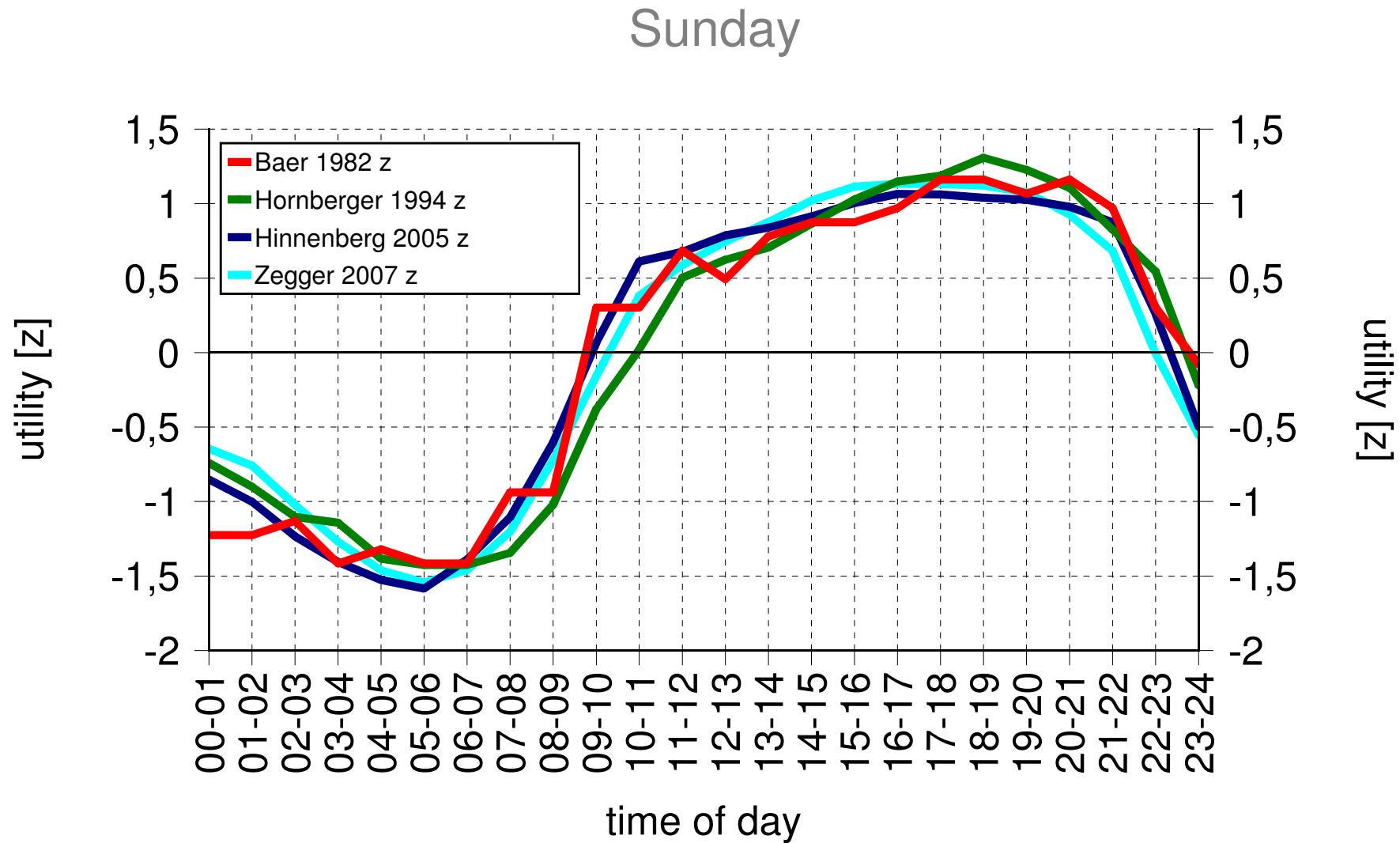
Monday - Thursday



Utility of time across 25 years, z-standardized



Utility of time across 25 years, z-standardized



Conclusions

- ✓ The social rhythm of an evening and weekend society still persists, virtually unchanged, over the last 25 years
 - ✓ in spite of all movements towards a 7x24 society
- ✓ Evening and weekend hours are still regarded as definitely more valuable for social interaction
- ✓ There seems to be a trend towards a greater utility of time on work days
 - ✓ while there is practically no change for the weekends

Conclusions

- ✓ The results clearly demonstrate that treating an hour = an hour in a bank of hours is unfair,
- ✓ Instead, other, more appropriate compensation schemes from an ergonomic point of view could be developed on the basis of such results
- ✓ Scaling the utility of time allows for a mathematical treatment of the social rhythm, which can be used in the evaluation of (flexible) work schedules

Conclusions

- ✓ Both, paper and pencil as well as web based inquiries seem appropriate for scaling the utility of time, with the web based approach offering some great advantages
- ✓ Both methods lead to completely comparable patterns of results
 - ✓ especially if relative / standardized values are used,
 - ✓ with differences in absolute values most probably due to the scaling format
- ✓ The web-based approach should easily allow for international or cross cultural studies, showing differences between countries, regions, or populations and their social rhythms

Thank you for your attention !

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