

# Commitment to social fares : the « Familles Nombreuses » card case study

## A stated preferences approach

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1

## The « Familles Nombreuses » card

### ❖ A public utility obligation

- Created after the First World War by the State : a relaunch natality policy
- Financed by the State since 1949
- From 30% to 75% discount according to the number of children in the family (0 to 18 years old)
- Without constraints in comparison with commercial tariffs
- A symbolic fare and a strong commitment from holders

Nom

Prénom

Né(e) le à

Adresse

Carte N°

Émise le

Les hirondelles doivent être centrées à l'intérieur de la fenêtre de découpe de la pince

SNCF

2

## Some statistics

2006	REVENUES	TRIPS	ESTIMATED SUBSIDIES		HOLDERS
<b>SNCF</b>	144,3 M €	6,5 M	49,3 M €	Discount	1,8 million
<b>Regional Traffic</b>	12,8 M €		4,6 M €	30%	72%
<b>Long distance traffic</b>	131,5 M €		44,6 M €	40%	17%
				50%	6%
				75%	4%

3

## The « Familles Nombreuses » card

### ❖ Short knowledge about the « Familles Nombreuses » card

- Some statistics but not really detailed
- No study about holders behaviours

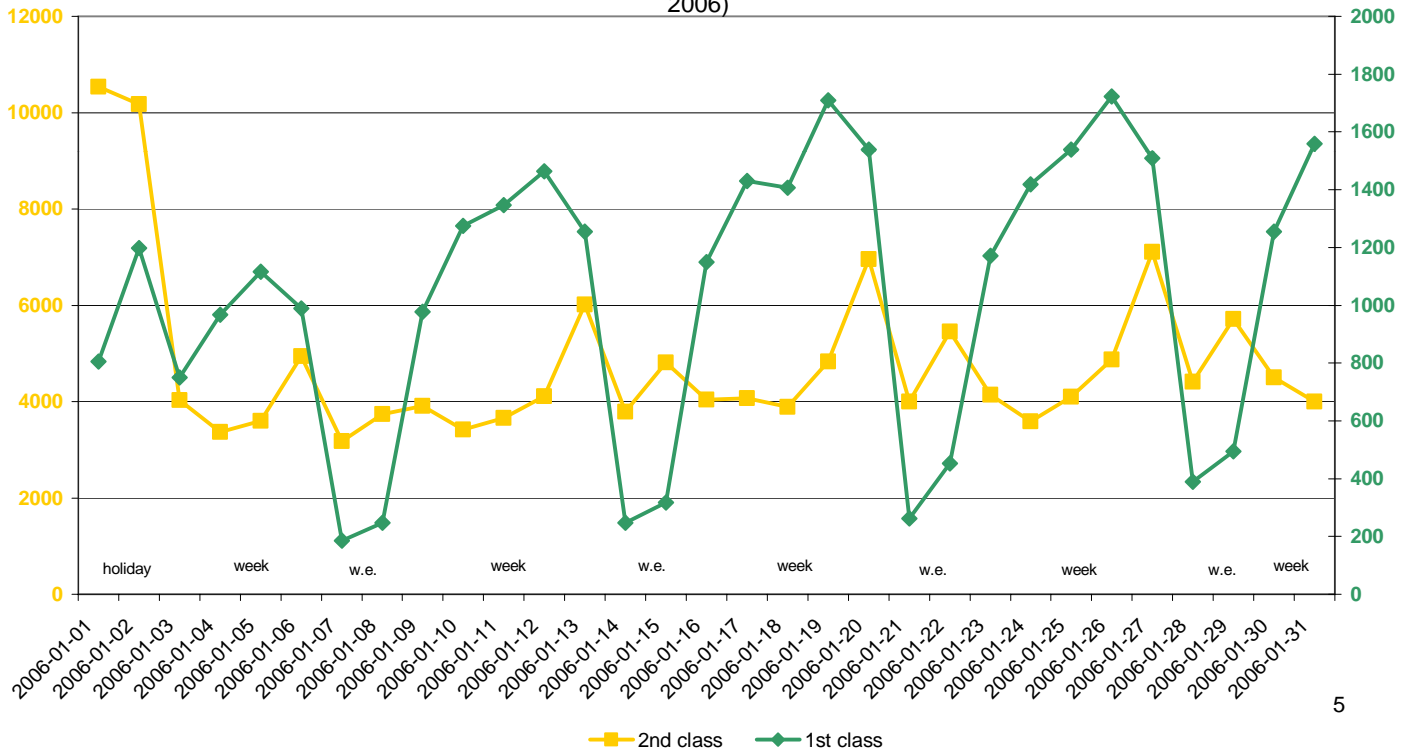
### ❖ « Familles Nombreuses » card dysfunctions

- The State intervenes less and less in the organisation and in particular in the financing
- Traffic decrease
  - *Competition between social and commercial fares*
  - *Competition of car and air transports*
- Changes in French society
  - *Less and less large families*
  - *Public policies interest on other social groups (vulnerable, unemployed people)*
- « Familles Nombreuses » card original aim is misused for business trips

4

# Familles Nombreuses card using for business trips

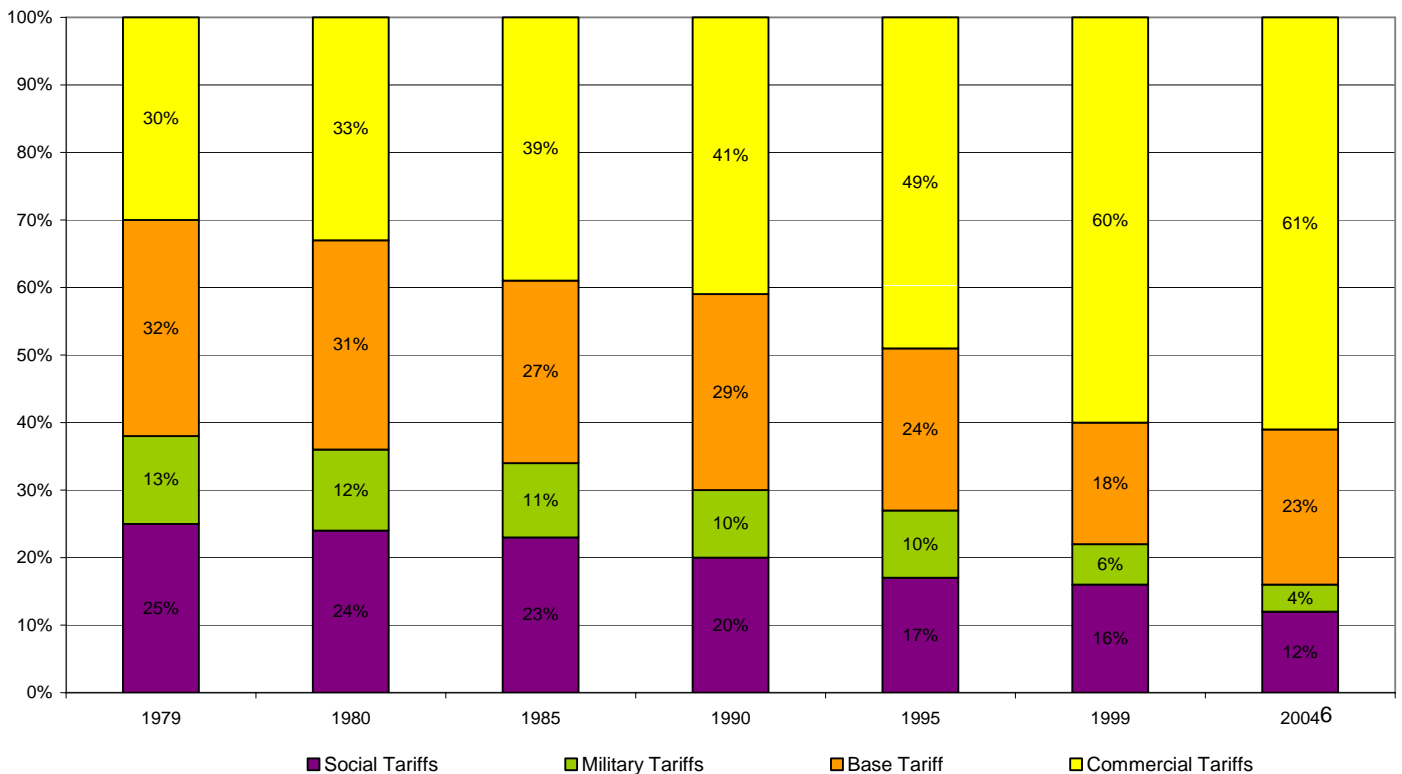
"Familles Nombreuses" card using functions of week days and class (TGV trips number, january 2006)



5

# Commercial tariffs competition demonstration

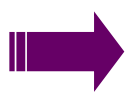
Competition between social tariffs and commercial tariffs since 1979 (distribution of TGV trips)



# Context presenting

## ❖ **Public utility liberalisation : an economic and institutional particular context**

- Need to clarify the definition and the content of public utility obligations, in particular financing modalities
- Need to clarify the role of public authorities which are back stepping, particularly in financing of public utility obligations
- Firms commercial strategies changes



*Redistributive role of the « Familles Nombreuses » card and legitimacy ?*



*A necessary reform*

7

# Objectives of the survey

## ❖ **2 objectives**

- Getting some data about card holders (travel behaviour, socio economic features, public services perception)
- Test if card holders would accept some constraints on their travel facilities

8

# Bibliography

- **Pearmain, D., et al., 1991**, *Stated Preference Technics : a guide to practice*, Second Edition, Steer Davies Gleave Hague Consulting Group.
- **Louvière, J.J., Hensher, D.A, Swait, J.D., 2000**, *Stated choice methodes : analysis and application*, Cambridge University Press.
- **Ben Akiva, M., Lerman, S., 1985**, *Discrete choice analysis: theory and application to travel demand*, MIT press series.

9

# SP Survey Attributes

TAB. 1 – Attributes and levels of the SNCF survey

Attributes	Attributes levels
1. accompanying constraint	I'm free to travel alone I must travel with a child
2. Booking pre-emption constraint	I book whenever i want to, even at the last moment I must book at least 2 days before I must book at least 5 days before I must book at least 1 week before
3. Travelling time constraint	I benefit the same discount whatever the time of my trip I benefit a different discount if i travel during peak or off peak period, +5% discount during off peak period and -5% discount during peak period ..., +10% discount during off peak period and -10% discount during peak period ..., +15% discount during off peak period and -15% discount during peak period
4. additional discount	+0% +5% +10% +15%

10

# Trade off example

no de questionnaire : "30-001"

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## Scénario A

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- Pas d'obligation de voyager avec enfants
  - Obligation de réserver une semaine à l'avance
  - Réduction de 30 % en période de pointe et de 50 % en période de creux
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## Scénario B

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- Obligation de voyager avec au moins un enfant
  - Pas d'obligation de réservation
  - Réduction de 45 % sans condition de période
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## Scénario C

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- Obligation de voyager avec au moins un enfant
  - Obligation de réserver deux jours à l'avance
  - Réduction de 30 % en période de pointe et de 60 % en période de creux
- 

11

# Estimation

$$U_i = \alpha + \beta_{pt} \cdot P^a + \beta_{ct} \cdot C^a + \beta_{rt} \cdot R^a + \beta_{et} \cdot E^a + \epsilon_i$$

$$P_{ia} = P(\Delta x_{ia}, \beta_i) = \frac{e^{\beta_i' \Delta x_{ia}}}{1 + e^{\beta_i' \Delta x_{ia}}}$$

12

# Results

TAB. 3 – Mixed logit estimation

	coef	t-stat	coef	t-stat	coef	t-stat
(Intercept)			1.11	7.49	1.10	7.44
p	-0.14	-11.49	-0.21	-12.99	-0.21	-12.84
c	0.08	7.50	0.02	1.54	0.02	1.75
r	0.14	6.94	0.10	6.73	0.10	6.70
a	4.69	10.35	3.98	12.61	4.09	10.69
sd(Intercept)			1.94	11.71	1.87	12.11
sdc	0.15	6.44	0.00	0.06		
sdr	0.32	7.99	0.12	3.17	0.14	3.84
sda	5.56	9.10	3.83	10.86	4.50	9.05

13

# Interpretation

TAB. 4 – Effects of the attributes

	pointe-creux	réservation	enfants
simple sans cste	0.50	0.83	20.69
simple avec cste	0.03	0.38	12.04
mixte sans cste	0.57	1.00	33.00
mixte avec cste	0.08	0.49	19.53

14

## Further researches

- Integrate socio demographic characteristics into estimation
- Run the model for some specific populations
- Make some forecast with estimated coefficients
- Make evolution proposals to the SNCF

15

## Conclusion

- ❖ **Contestable pertinence and legitimacy of social fares**
- ❖ **A necessary change**
- ❖ **Card holders seem to be ready to accept some evolutions**
- ❖ **A political and public economics question**

16





**Thanks for your attention**

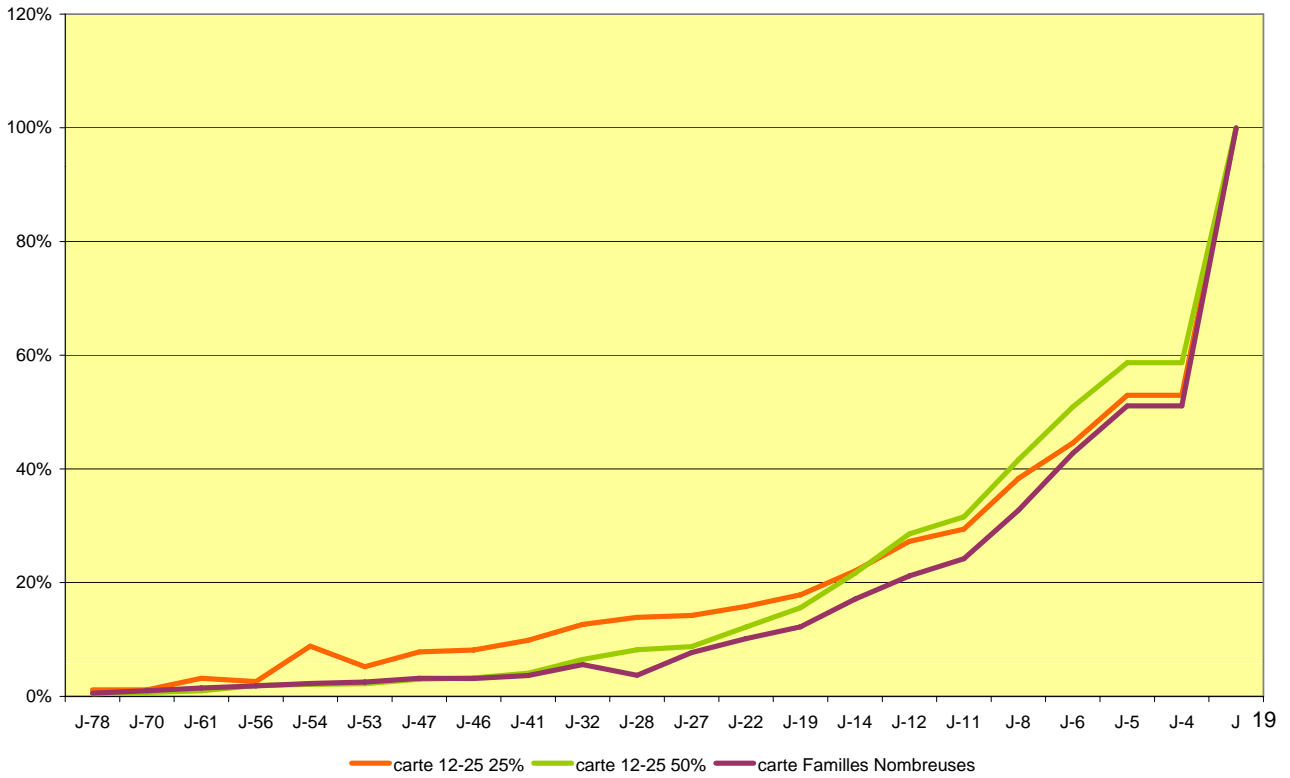
17



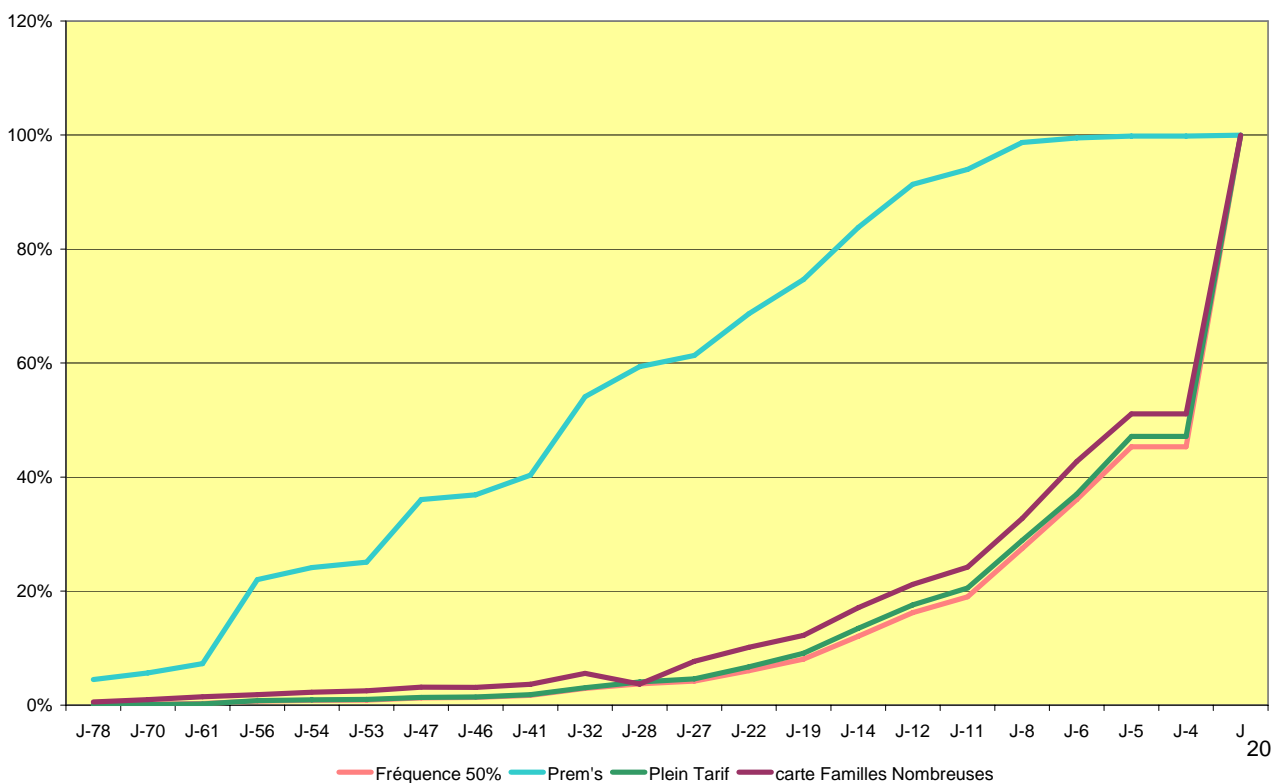
**Appendix**

18

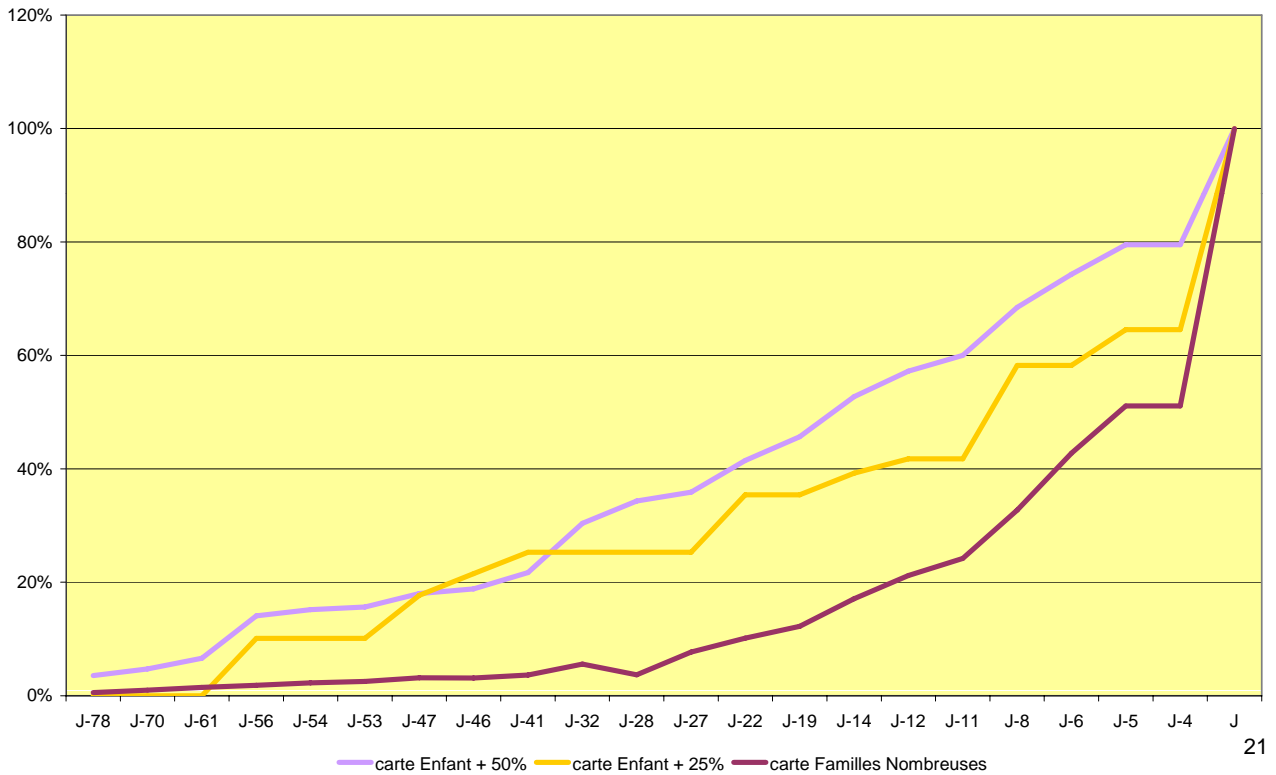
# Booking pre-emption



# Booking pre-emption



# Booking pre-emption



21

# Booking pre-emption

	carte 12-25 25%	carte 12-25 50%	carte Escapades 40%	carte Enfant + 50%	Fréquence 50%	Prem's	Plein Tarif	carte Senior 25%	carte Senior 50%	carte Escapades 25%	carte Escapades 30%	carte Enfant + 25%	carte Familles Nombreuses
J-78	1%	0%	1%	4%	0%	5%	0%	1%	1%	0%	0%	0%	1%
J-70	1%	1%	2%	5%	0%	6%	0%	2%	2%	0%	0%	0%	1%
J-61	3%	1%	2%	7%	0%	7%	0%	2%	3%	0%	0%	0%	1%
J-56	3%	2%	5%	14%	1%	22%	1%	5%	8%	2%	2%	10%	2%
J-54	9%	2%	6%	15%	1%	24%	1%	5%	9%	2%	2%	10%	2%
J-53	5%	2%	6%	16%	1%	25%	1%	5%	9%	2%	2%	10%	3%
J-47	8%	3%	8%	18%	1%	36%	1%	7%	12%	3%	2%	18%	3%
J-46	8%	3%	8%	19%	1%	37%	1%	7%	12%	3%	2%	22%	3%
J-41	10%	4%	10%	22%	2%	40%	2%	9%	15%	3%	2%	25%	4%
J-32	13%	7%	14%	30%	3%	54%	3%	15%	21%	5%	4%	25%	6%
J-28	14%	8%	17%	34%	4%	59%	4%	17%	24%	10%	6%	25%	4%
J-27	14%	9%	18%	36%	4%	61%	5%	19%	26%	12%	6%	25%	8%
J-22	16%	12%	21%	41%	6%	69%	7%	24%	31%	12%	10%	35%	10%
J-19	18%	16%	25%	46%	8%	75%	9%	29%	36%	15%	10%	35%	12%
J-14	22%	22%	32%	53%	12%	84%	13%	36%	43%	21%	22%	39%	17%
J-12	27%	29%	38%	57%	16%	91%	18%	43%	48%	30%	24%	42%	21%
J-11	29%	32%	42%	60%	19%	94%	21%	45%	52%	31%	37%	42%	24%
J-8	38%	42%	54%	68%	27%	99%	29%	53%	61%	46%	51%	58%	33%
J-6	45%	51%	63%	74%	36%	99%	37%	63%	67%	56%	61%	58%	43%
J-5	53%	59%	71%	80%	45%	100%	47%	71%	74%	66%	67%	65%	51%
J-4	53%	59%	71%	80%	45%	100%	47%	71%	74%	66%	67%	65%	51%
J	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

22