

Pravda (1984)

Soviets Waste 37 Billion Hours/year Waiting in Line

United States

**200 Million People spend 30 minutes per day
for 365 days**

= 37 Billion hours per year

Awake 16 hours per day ----> 3% of time Waiting.

6.25 Million people "standing around"

**Life expectancy 75 years X 16 hours X 365 days
= 440,000 hours awake per lifetime.**

37Billion / 440 thousand == 84,000 lifetimes per year

Wasted !! in the United States

Table I. How we die

fatalities in the U.S. population from selected causes(ca. 1994 data)

738,000	Heart disease	
328,000	Cancer	
209,100	Stroke	
55,350	Motor vehicle accidents	< 84,000 lifetimes <u>wasted</u> waiting in line
38,950	Diabetes	
24,600	Suicide	
21,730	Emphysema	
18,860	Homicide	
7,380	Drowning	
7,380	Fire	
3,690	Tuberculosis	
2,563	Poison	
2,255	Firearm accident	
1,886	Asthma	
1,517	Motor vehicle collisions with trains	
1,025	Electrocution	
902	Appendicitis	
677	infectious hepatitis	
451	Pregnancy. birth, and abortion	
410	Syphilis	
334	Excess cold	
205	Flood	
129	Nonvenomous animal	
107	Lightning	
90	Tornado	
48	Venomous bite or sting 17 Polio	
15	Whooping cough	
8	Smallpox vaccination	
6	Fireworks 5 Measles 2 Botulism	
1	Poisoning by vitamins	
0	Smallpox	

Psychology of Queuing:

Rothkopf & Rech, 1987, Ops Res. 35:906; Larson, 1987, Ops Res 35:895

Why Not Combine Queues?

- **Delay Avoidance promotes desirable behavior**
 - Cash Only, Correct Change
 - Carpool Lanes
 - Customers with correct forms
- **Specialization**
 - Familiarity gives efficiency
 - Express lanes reduce variance
 - Travelers' checks in Lane 7
- **Physical Proximity to Process**
 - job overlap (unload cart, fill out forms, instructions)
 - Server responsibility for the line
- **Appearance and lost business**
 - Combined queue Looks longer

Are Lanes Really Separate?

- Cultural SPT
- Those with high delay costs can jockey more aggressively
- Choice of server, skill, gives sense of control/sport

Social Justice

- **FCFS/ FIFO**
 - Enforce Rules
 - New Lanes Jockeying

People Want Diligence & Concern

- Feedback on delays
- occupation reduces helplessness
- Look busy!
- Reduce Procedure failures
- More clerk discretion

Reduce sense of wasted time

provide entertainment, occupation