

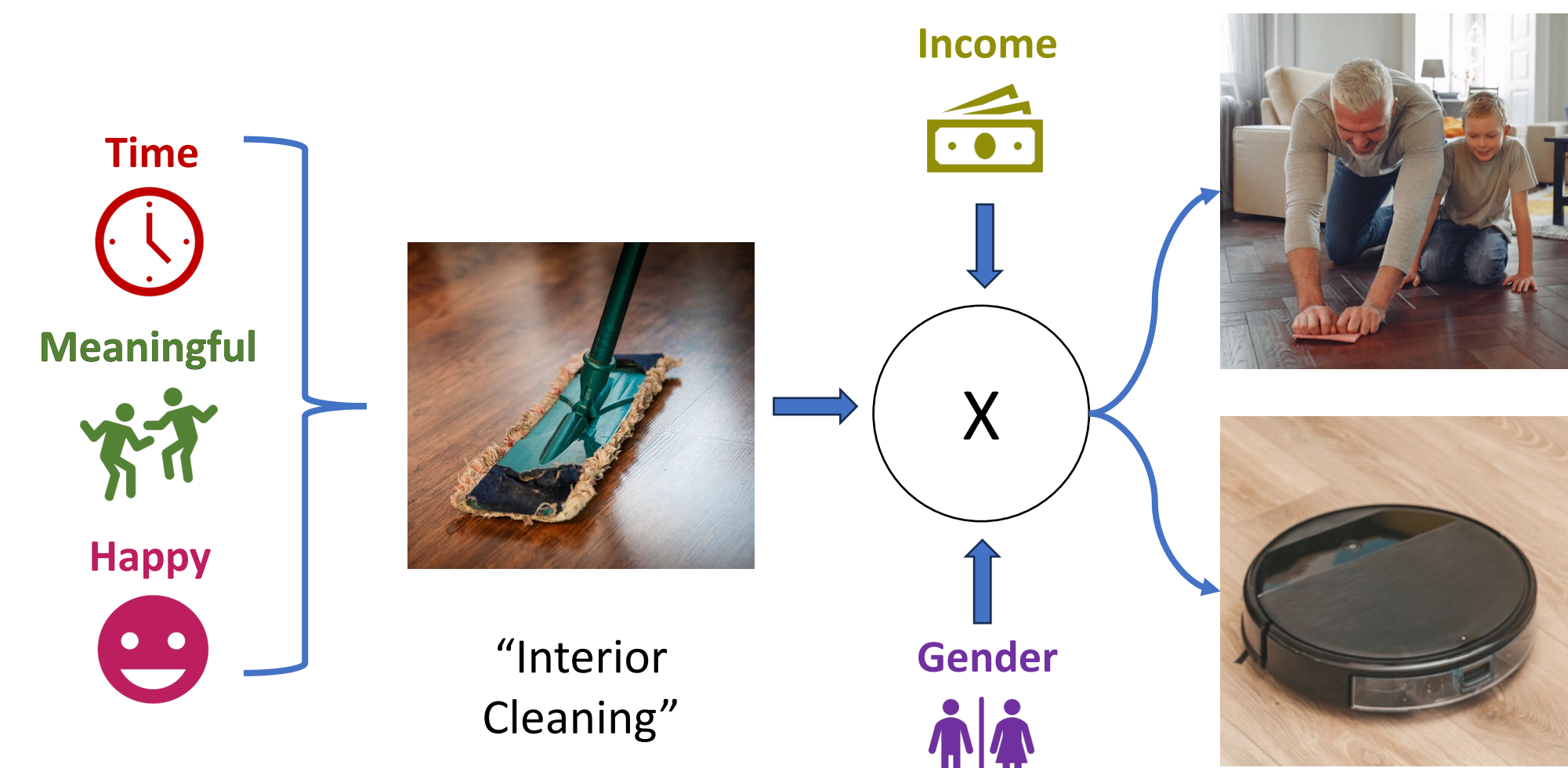
Towards a Better Understanding of the Desire for Robot Automation of Different Social Groups

Ruchira Ray, Samantha Shorey, Roberto Martín-Martín

Motivation

What is behind people's reported desire for automation(DA)?

Do people want robots to take over the activities they spend the most time(T) doing, or the activities they find the least enjoyable(H) or meaningful(M)? Are these preferences consistent across gender and income?



Automate activities that better meet the needs of different groups of people

Dataset

BEHAVIOR-1K

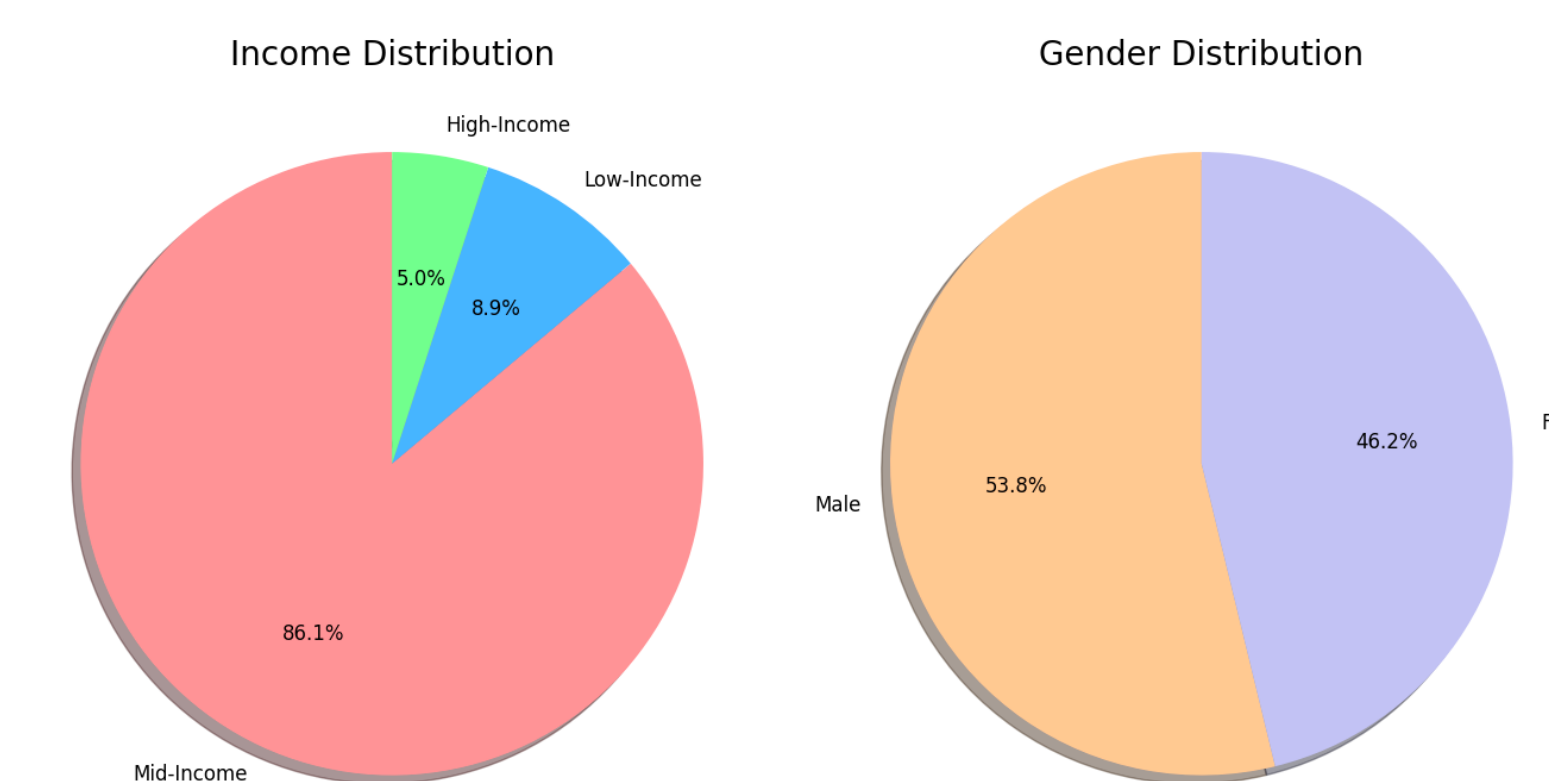
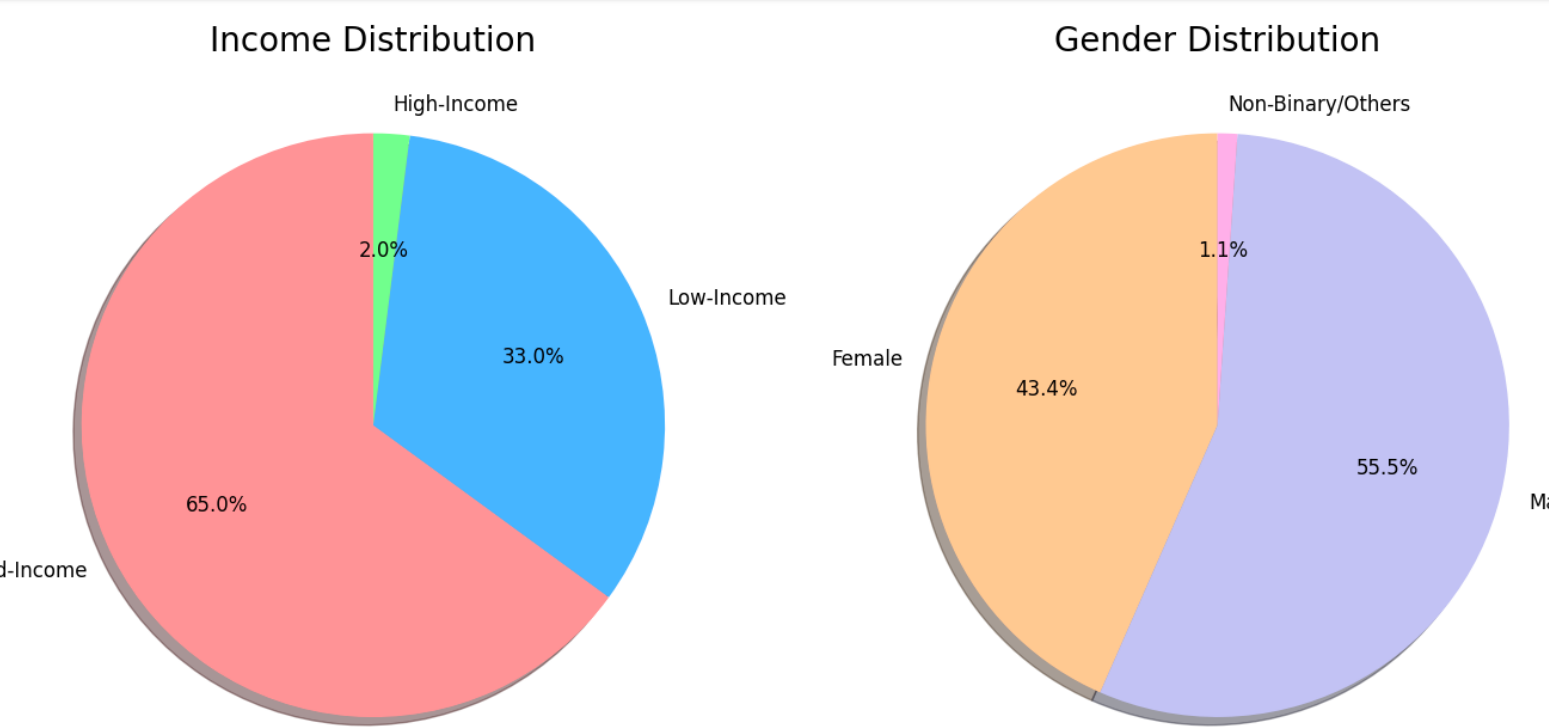
- Desire for Automation(DA): Rate how much they wanted the task automated on a scale from **0 to 10**

ATUS (2021)

- Time Spent(T): Duration of time spent on the task in **Minutes**

ATUS Well-Being (2021)

- Happiness(H): Rate how enjoyable the task is on a scale from **0 to 6**
- Meaningfulness(M): Rate how meaningful the task is on a scale from **0 to 6**



Conclusion

•DA correlates negatively with happiness & meaningfulness and is less about time; it's task-specific for HH tasks

•DA across various tasks is more significantly impacted by income differences than gender differences

•Males show slightly greater DA for HH tasks, spending 8% less time (131 mins vs 121 mins) and deriving less happiness

•Low and mid incomes show higher DA for HH tasks than high income, despite spending less overall time(121 mins & 124 mins vs 131 mins) but more time on the top 5 tasks (93 mins & 105 mins vs 86 mins)

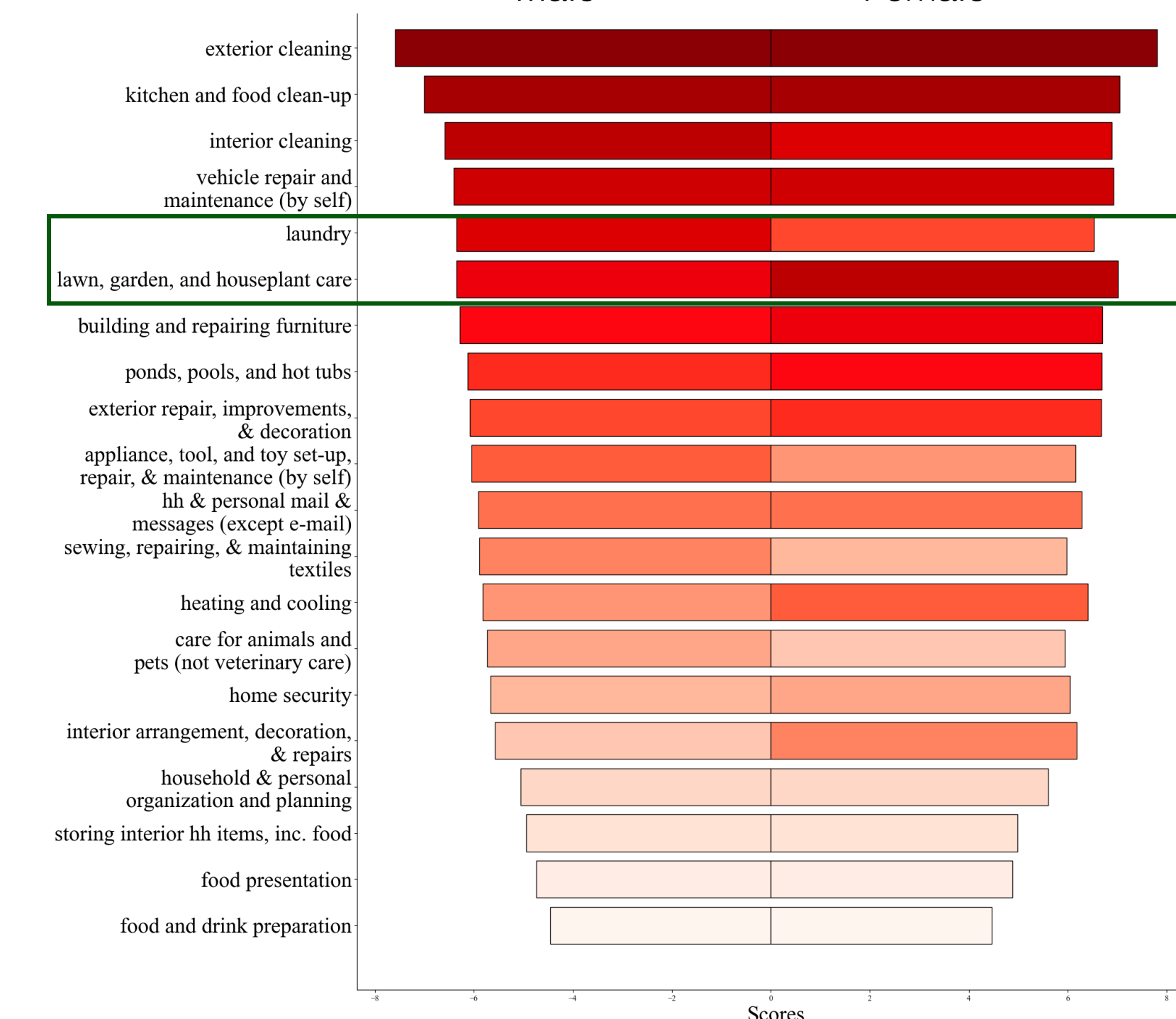
Analysis & Results

•Cleaning tasks have high DA(R=1,2,3) due to their low enjoyment(R= 11,18,17) and meaningfulness(R=16,19,17)

•Food preparation & presentation tasks have low DA(R=19,20), valued for their meaningfulness(R=10,11) and happiness(R=1,9) even if time consuming(33 mins)

All Activities			
Correlation	Spearman's rho (ρ)	Kendall's tau (τ)	p-Value
DA vs H	-0.35	-0.25	0.01
DA vs M	-0.28	-0.20	0.04
DA vs T	0.03	0.03	P>0.05

HH Activities



Male vs Female

•Females spend 47% more time on laundry (18 mins vs 5 mins)

•Males spend 42% more time on lawn and houseplant care (18 mins vs 11 mins)

All Activities				
Gender	Correlation	Spearman's rho (ρ)	Kendall's tau (τ)	p-Value
Female	DA vs M	-0.30	-0.20	0.04
Female	DA vs H	0.07	-0.16	>0.05
Female	DA vs T	0.03	-0.03	>0.05
Male	DA vs M	-0.24	-0.22	>0.05
Male	DA vs H	-0.31	-0.01	0.027, 0.09
Male	DA vs T	0.02	0.13	>0.05

Low vs Mid vs High Income



•**Mailing:** Mid-Income DA↑(R_{Mid}=3, R_{Low}=16, R_{High}=20) though finds it more enjoyable (R_{Mid}=8, R_{High}=17, R_{Low}=19) and meaningful (R_{Mid}=9, R_{Low}=9, R_{High}=12)

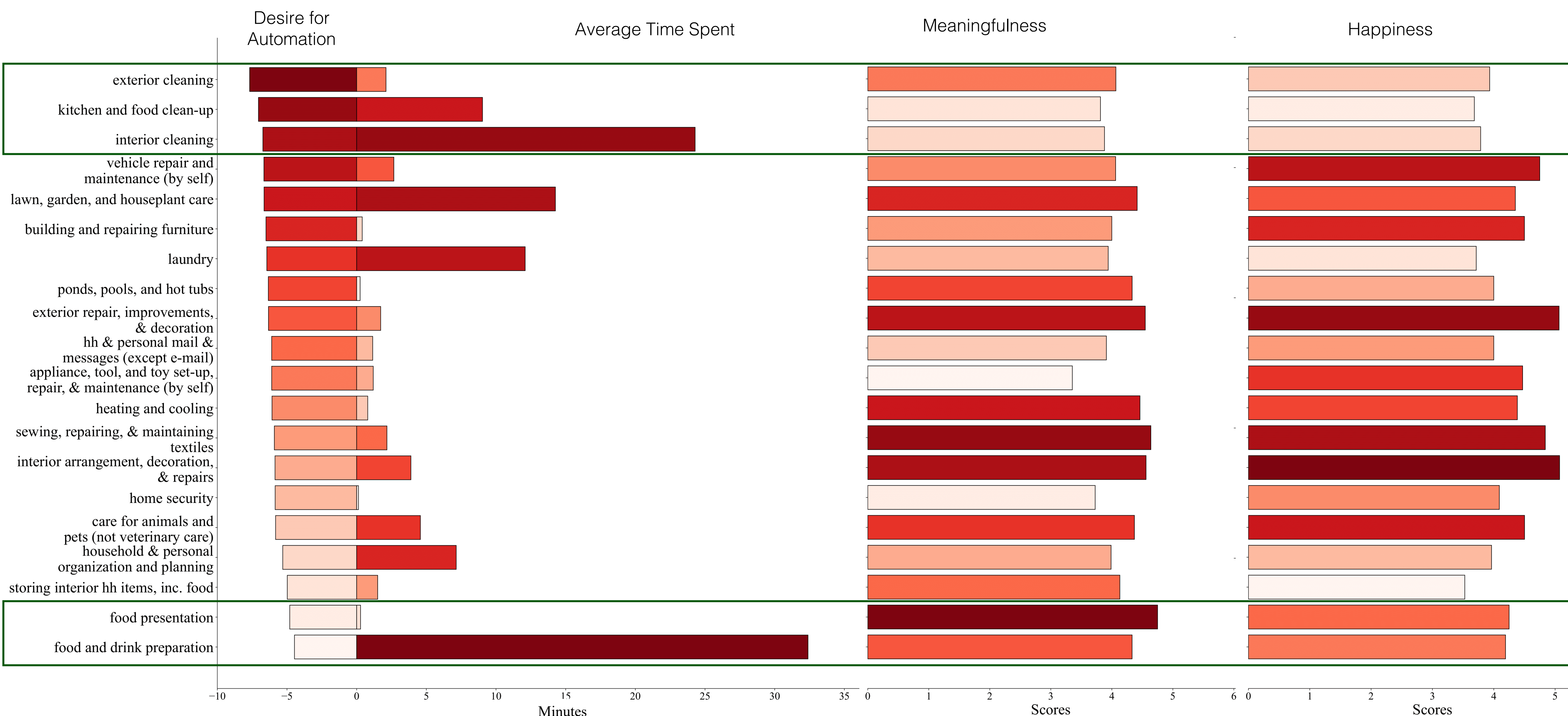
•**Build Furniture:** High-Income DA↑(R_{High}=1, R_{Low}=4, R_{Mid}=9), spends most time on it (T_{High}=1.4 mins, T_{Low}=1.1 mins, T_{Mid}<0 mins)

•**Interior Cleaning:** Low-Income DA↑(R_{Low}=3, R_{High}=5, R_{Mid}=6)spends more time (T_{Low}=31.2 mins, T_{Mid}= 23.6 mins, T_{High}= 19.6 mins) find it less meaningful (R_{Low}=8, R_{High}=8, R_{Mid}=10)

•**Lawn Care:** High-Income DA↑(R_{High}=4, R_{Mid}=5, R_{Low}=7), spends the more time(T_{High}= 18.6 mins, T_{Mid}= 13.1 mins, T_{Low}=8.4 mins), though finds it more enjoyable(R_{High}=5, R_{Mid}=6, R_{Low}=9) and meaningful (R_{High}=2, R_{Low}=4, R_{Mid}=7)

•**Laundry:** Low-Income DA↑(R_{Low}=10, R_{High}=10, R_{Mid}=6), spends more time(T_{Low}=17.5 mins, T_{Mid}=12.3 mins, T_{High}=8.4 mins) interestingly finds it enjoyable (R_{Low}=3, R_{High}=14, R_{Mid}=17)and meaningful(R_{Low}=5, R_{High}=11, R_{Mid}=13)

All Activities				
Income Bracket	Correlation	Spearman's rho (ρ)	Kendall's tau (τ)	p-Value
Mid	DA vs M	-0.30	-0.22	0.03
Mid	DA vs H	-0.30	-0.21	0.03



HH Activities