Game 2

TAX INCIDENCE EQUIVALENCE

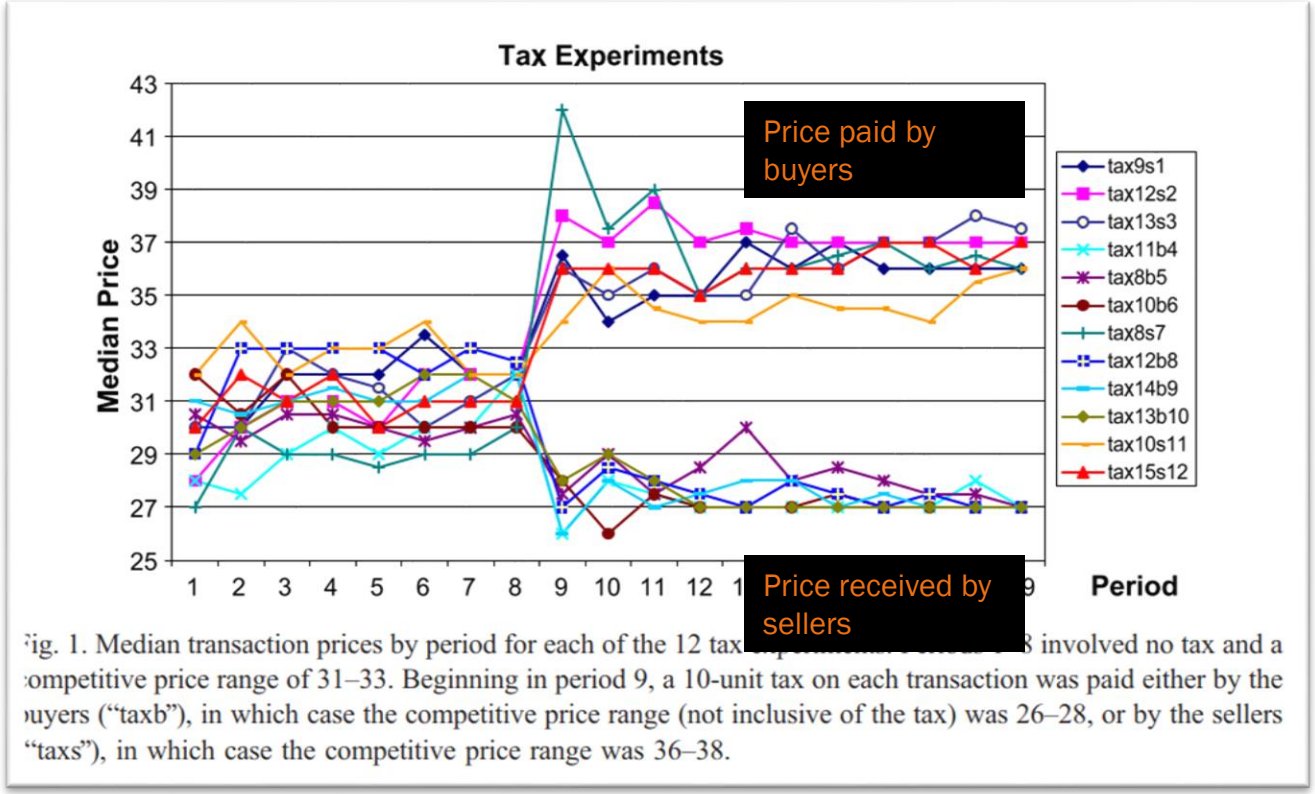
Tax Incidence Equivalence

- Tax incidence equivalence means that when a tax is imposed, it doesn't matter whether the government collects the tax from buyers or sellers.
  - The **actual tax burden (who suffers because of the tax)** will be the same.
  - The price paid by buyers will be the same whether the tax is collected from them or from the sellers. Similarly, the sellers receive the same amount after the tax, no matter who pays the tax.
  - Thus, tax incidence does not depends on who pays the tax

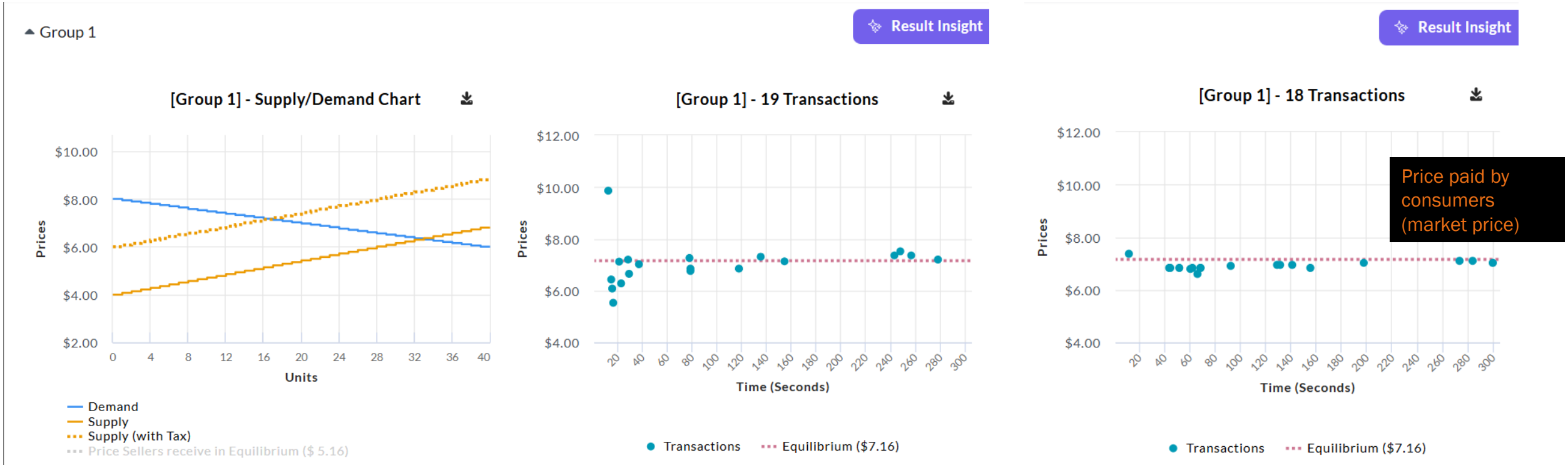
- However, many people (including the media) often confuse statutory incidence (who officially pays the tax) with economic tax incidence (who actually ends up losing out because of the tax).
  - E.g. Debate over cigarette tax: Those who want to discourage smoking advocate taxing the consumer; those who believe the tobacco companies should be punished focus on taxing the producer (Rosen, 1999).

Tax Incidence Equivalence in Double Auction Market (Ruffle, 2005)

- Ruffle (2005) tested the idea of tax incidence equivalence (and a similar idea for subsidy) using double auction market experiments.
- Finding: If the market is big enough, the results show strong support for tax incidence equivalence.

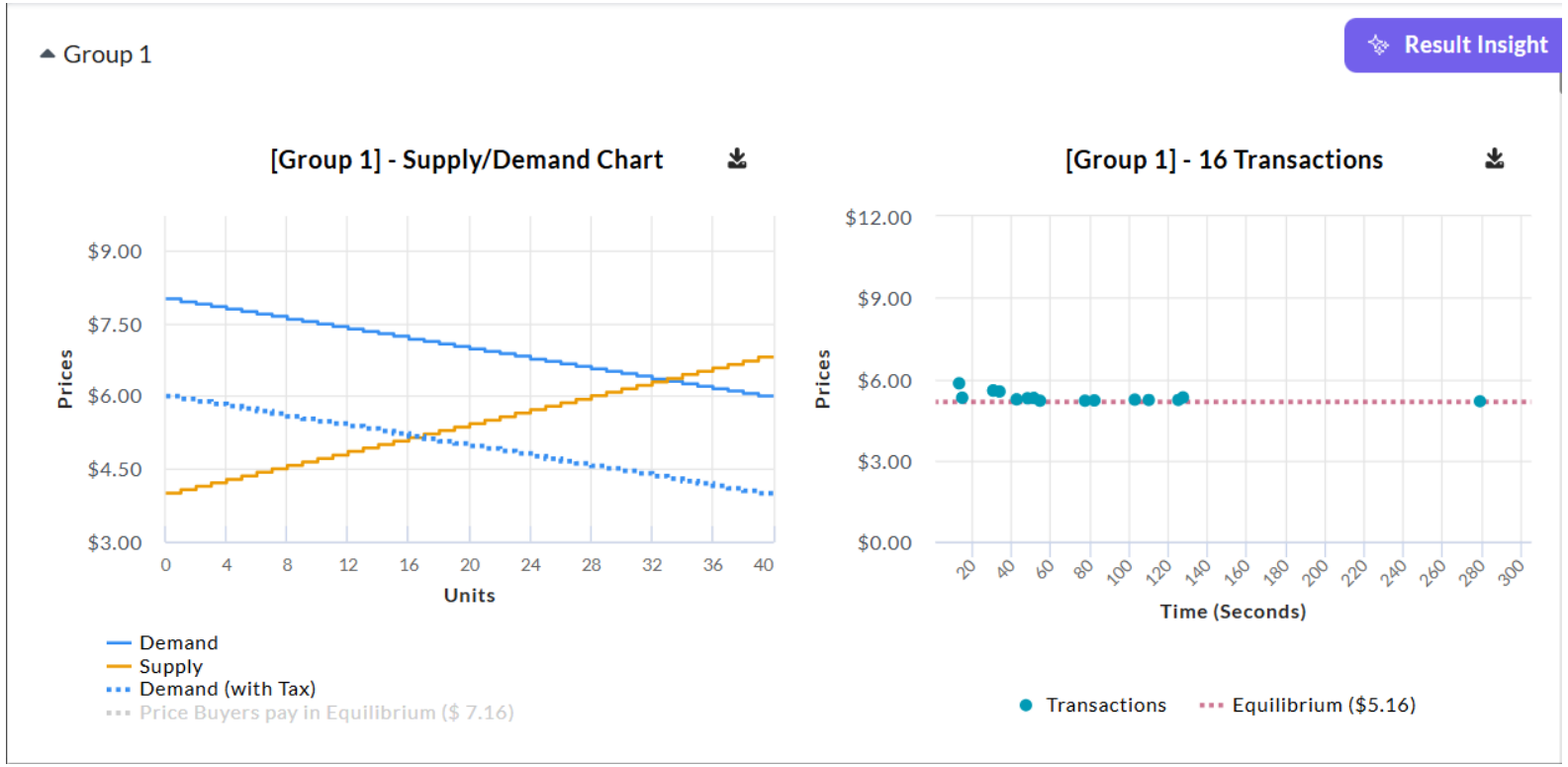


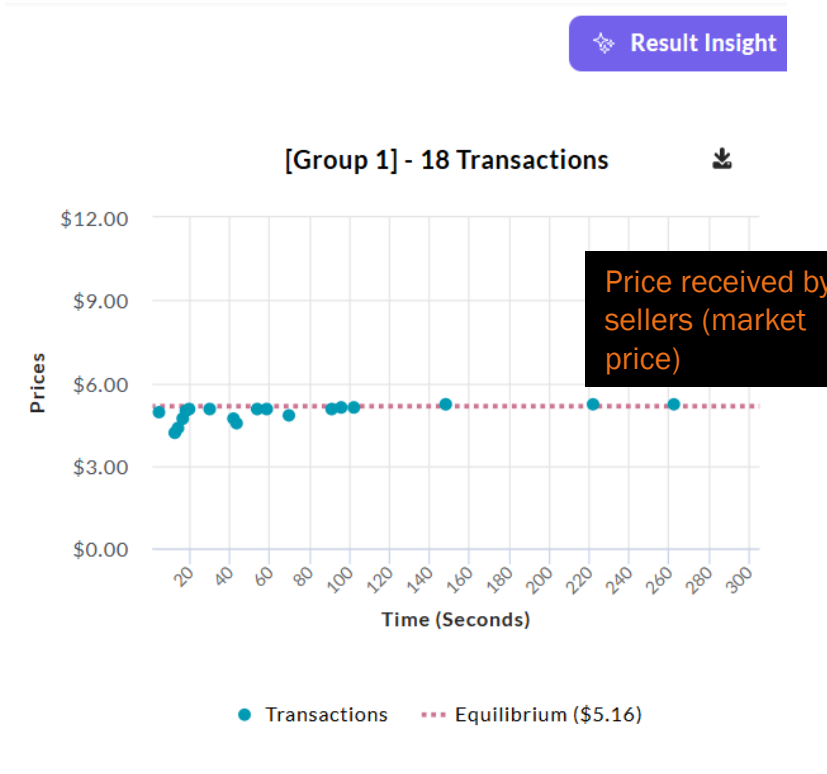
ig. 1. Median transaction prices by period for each of the 12 tax involved no tax and a ompetitive price range of 31–33. Beginning in period 9, a 10-unit tax on each transaction was paid either by the uyers ("taxb"), in which case the competitive price range (not inclusive of the tax) was 26–28, or by the sellers "taxs"), in which case the competitive price range was 36–38.



Wed pm – Group 1

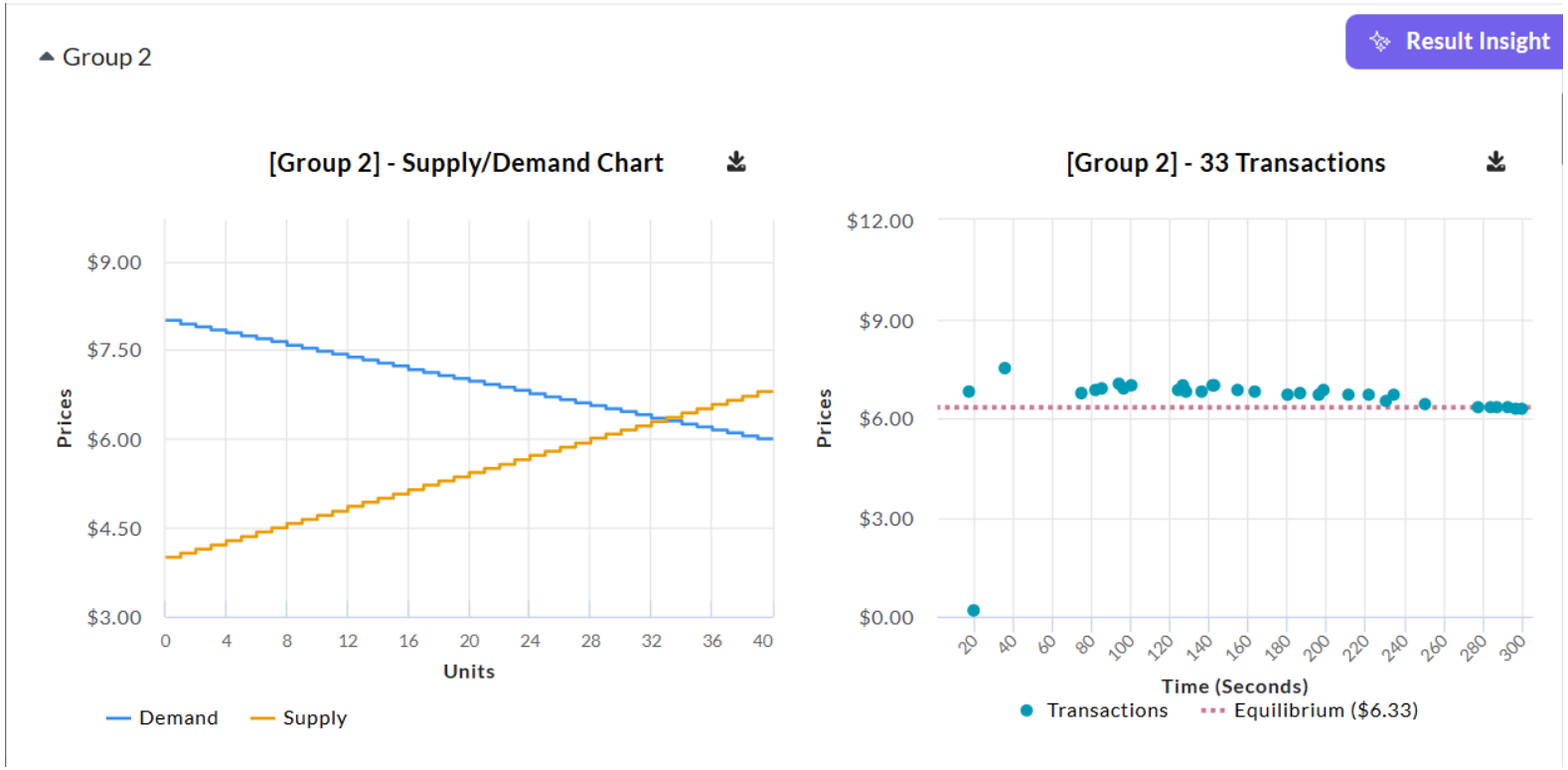
Period 3 – 4: tax on sellers (Eq. Price = $7.16; Price Sellers Receive in Eq. = $5.16)

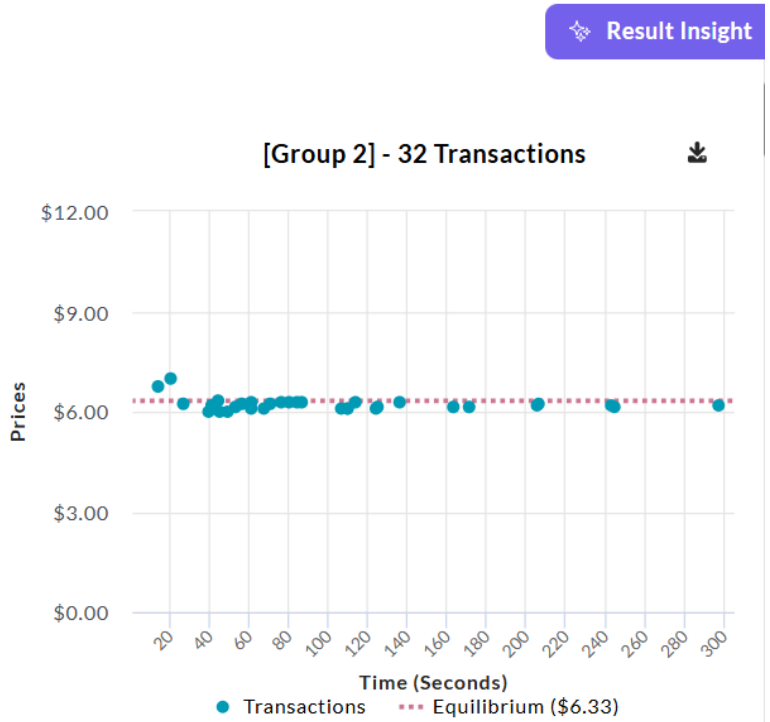




Wed pm – Group 1

Period 5 – 6: tax on buyers (Eq. Price = $5.16; Price Buyers Pay in Eq. = $7.16)

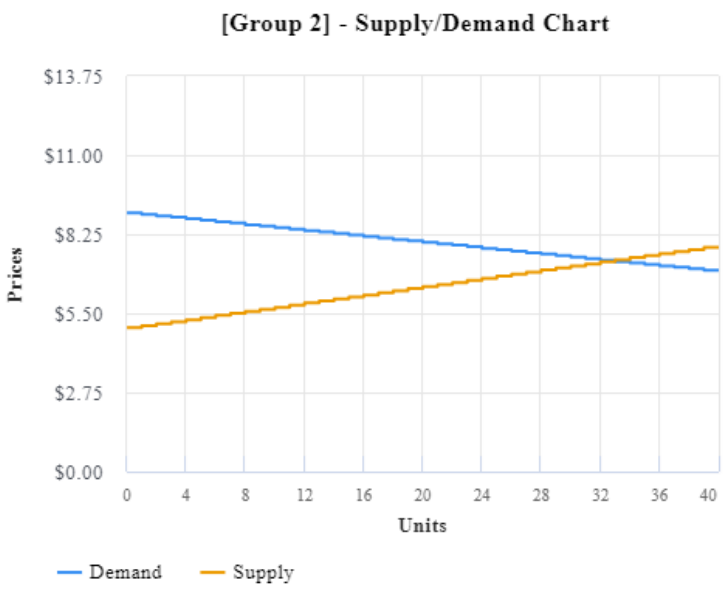


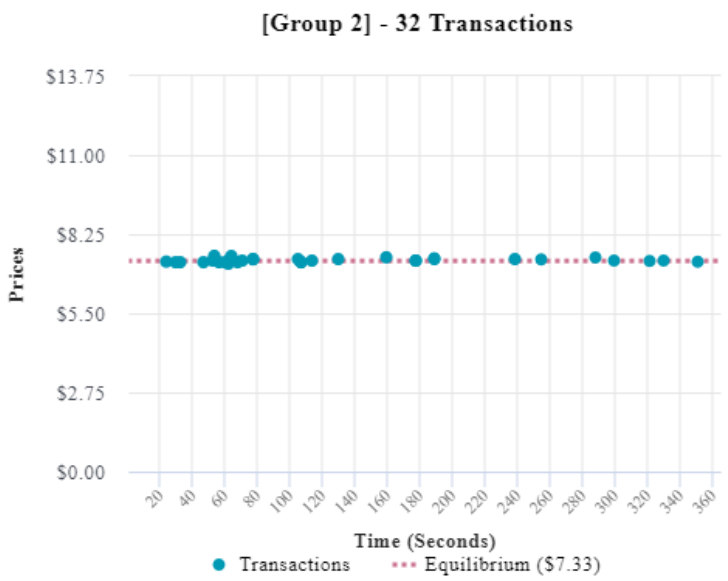


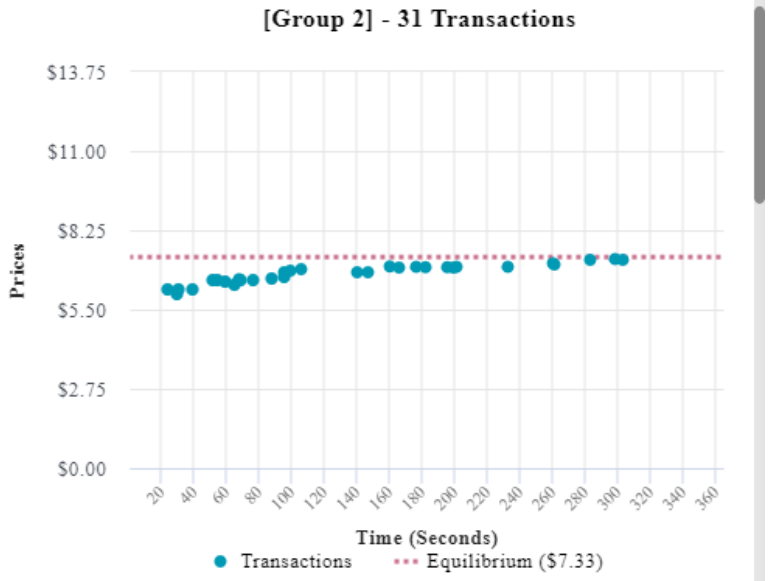
Wed pm – Group 2

Period 1 – 2: No tax (Eq. Price: $6.33)

Group 2

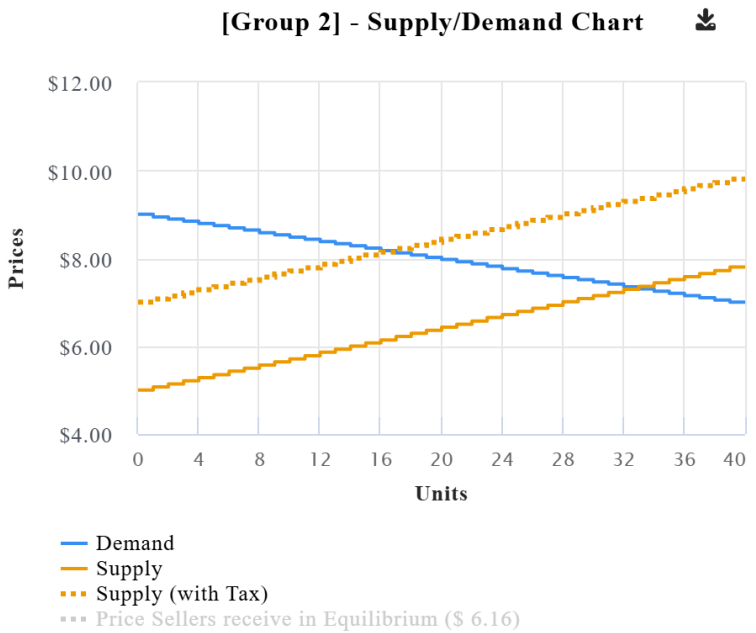


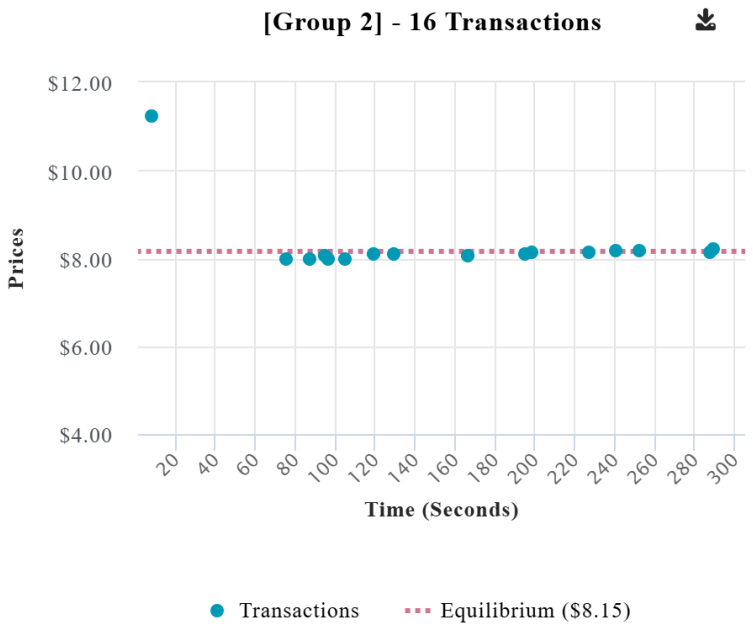


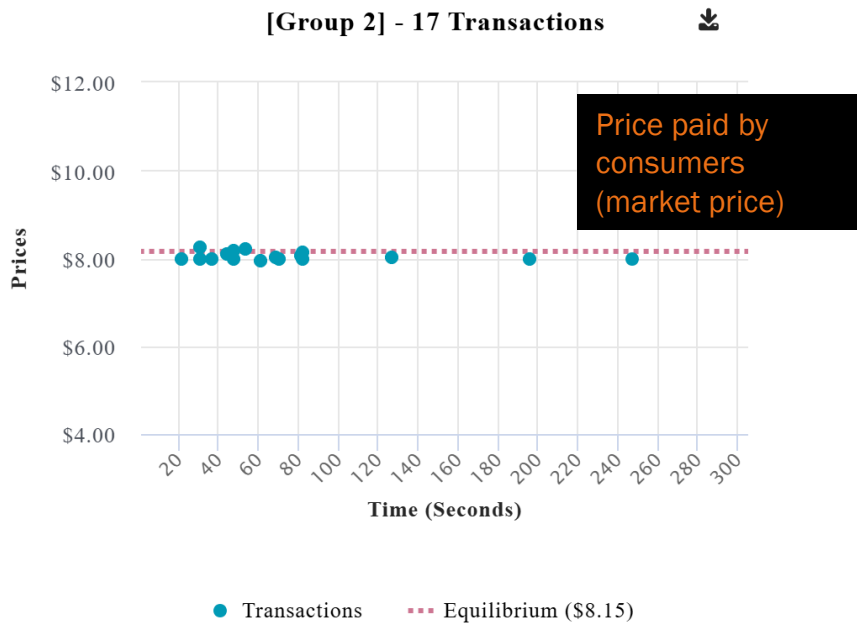


Fri – Group 2

Period 1 – 2: No tax (Eq. Price: $7.33)

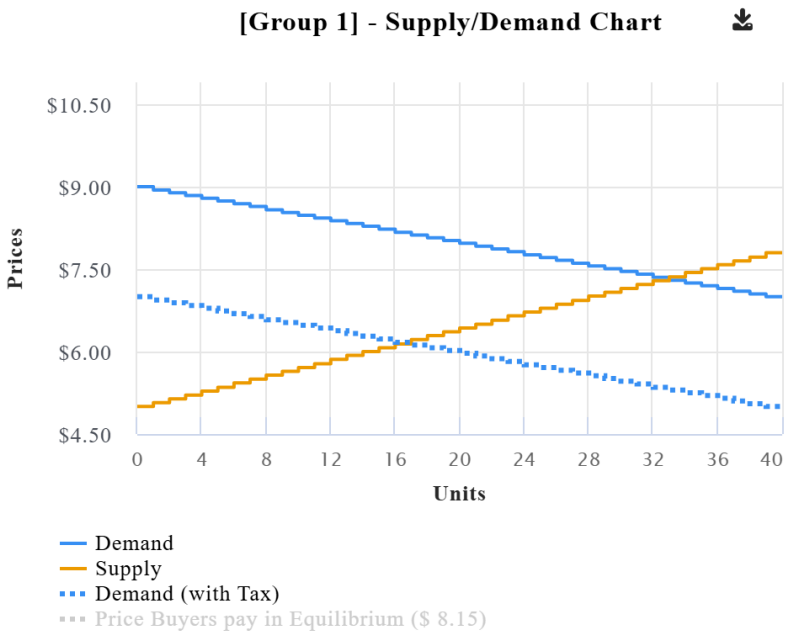


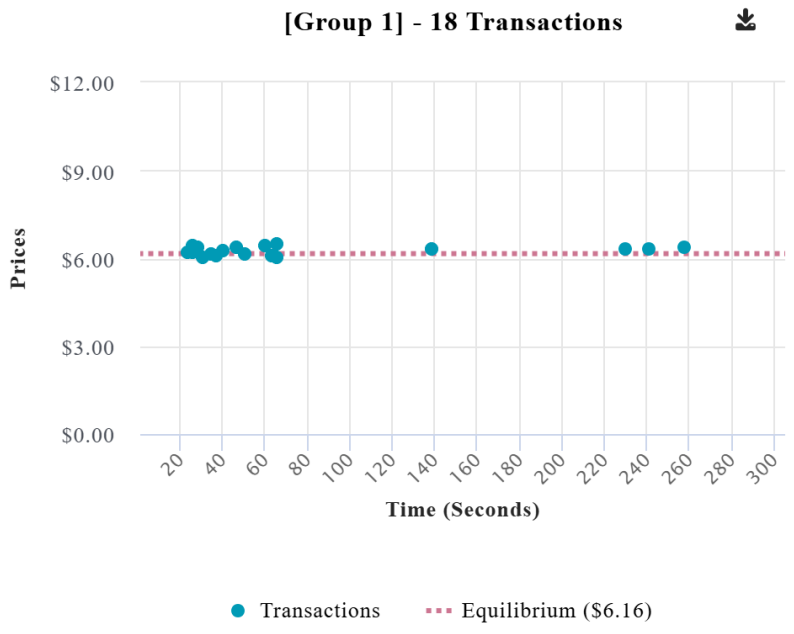


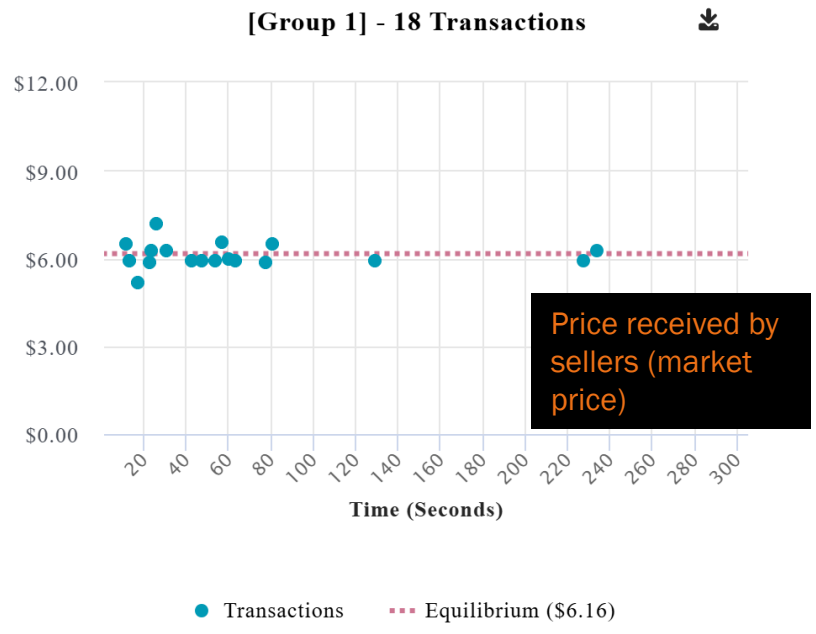


Fri – Group 2

Period 3 – 4: tax on sellers (Eq. Price = $8.15; Price Sellers Receive in Eq. = $6.16)







Fri – Group 2

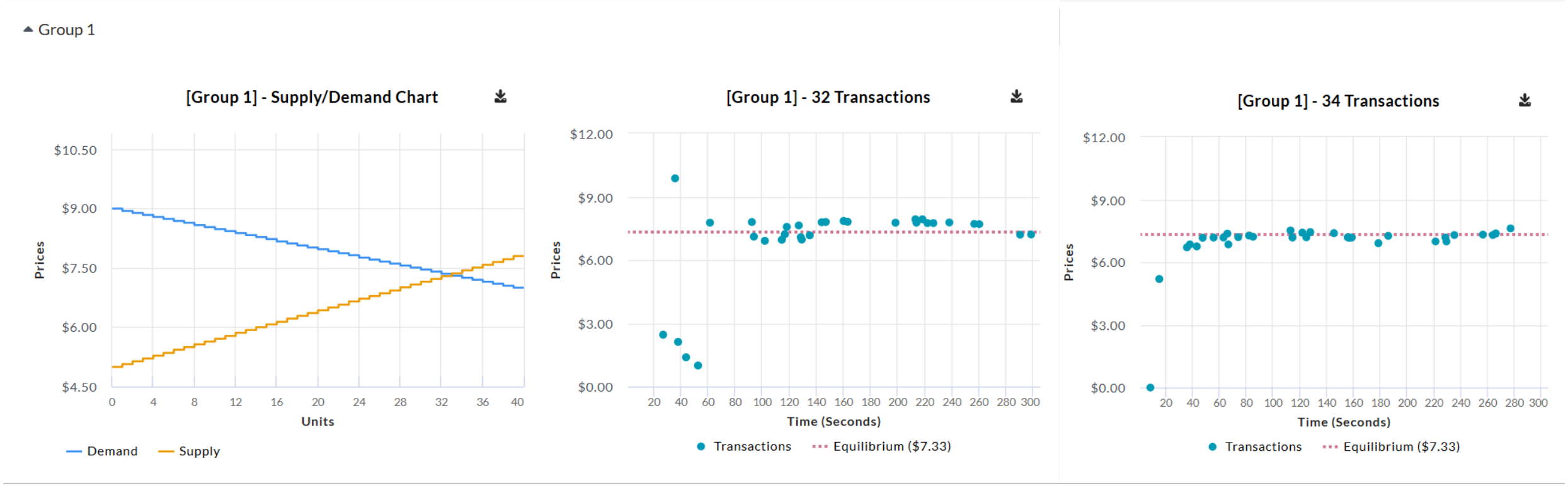
Period 5 – 6: tax on buyers (Eq. Price = $6.16; Price Buyers Pay in Eq. = $8.15)

Policy Implications

- If the industry is competitive market, then the tax (subsidy) should be administered in a way that minimizes collection and compliance costs and fits with other local or national objectives (e.g. not to harm local producers).

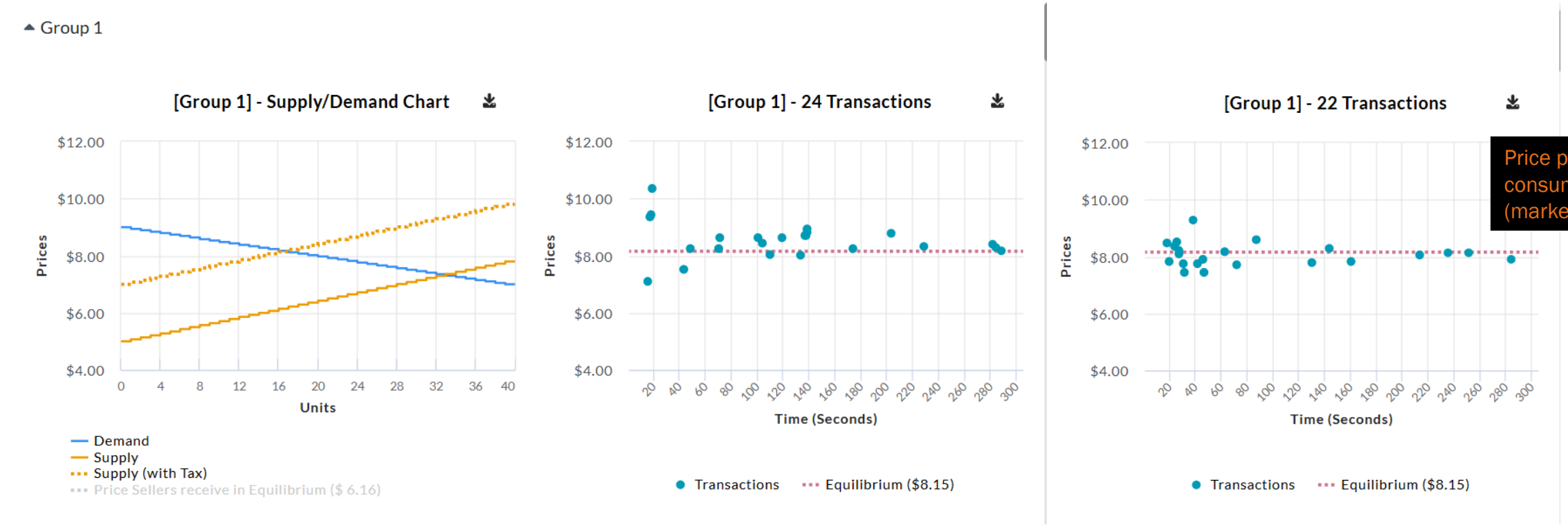
- If the market is **not perfectly competitive (e.g. monopoly)**, then it becomes much more important to discuss who actually pays the tax or who gets the subsidy. In these cases, the effects can be very different depending on who is responsible.

Appendix: Experimental Results



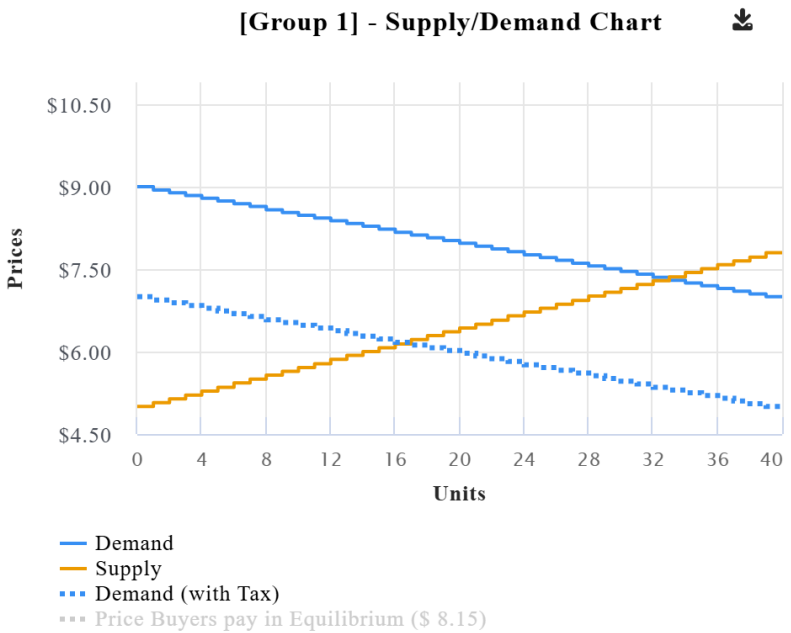
Fri – Group 1

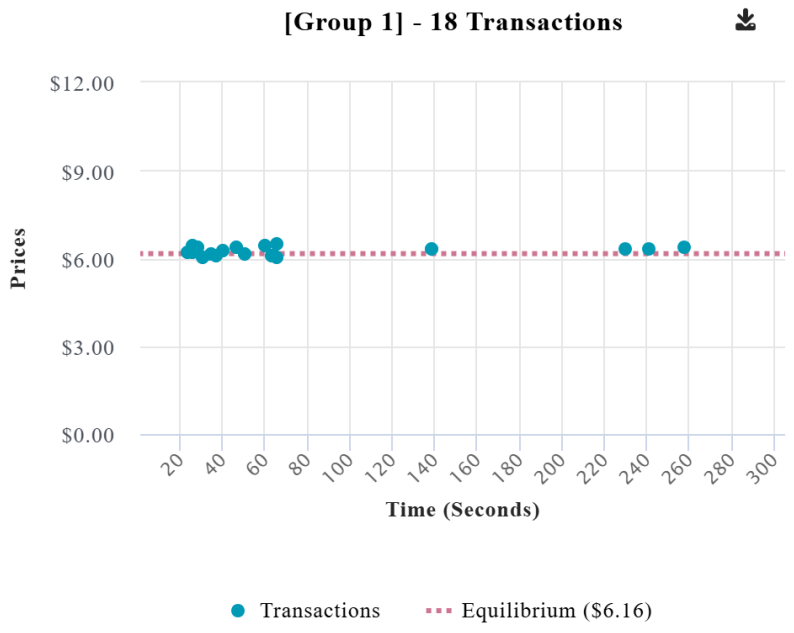
Period 1 – 2: No tax (Eq. Price: $7.33)

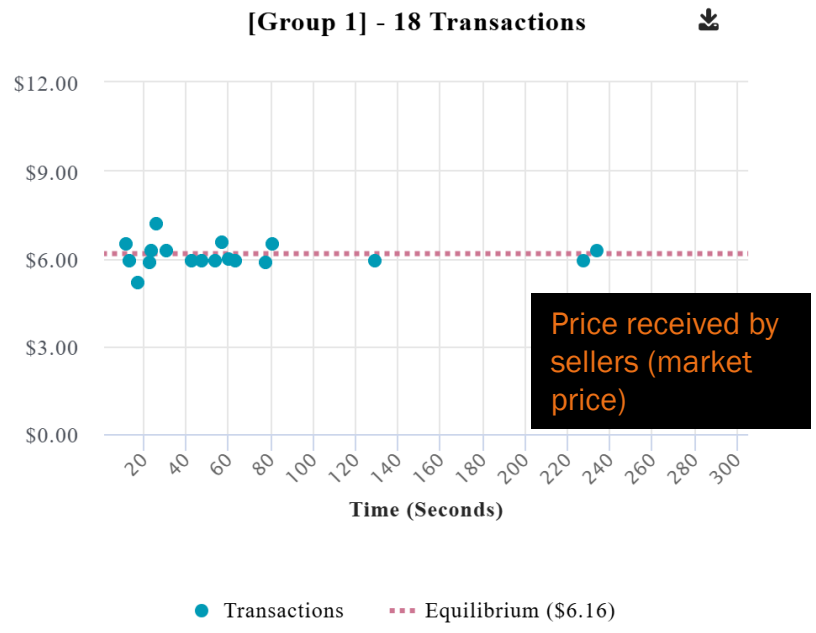


Fri – Group 1

Period 3 – 4: tax on sellers (Eq. Price = $8.15; Price Sellers Receive in Eq. = $6.16)



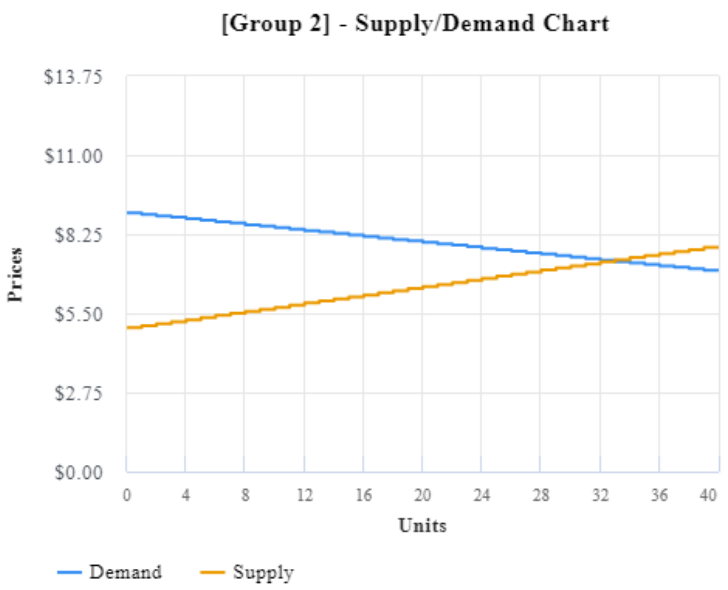


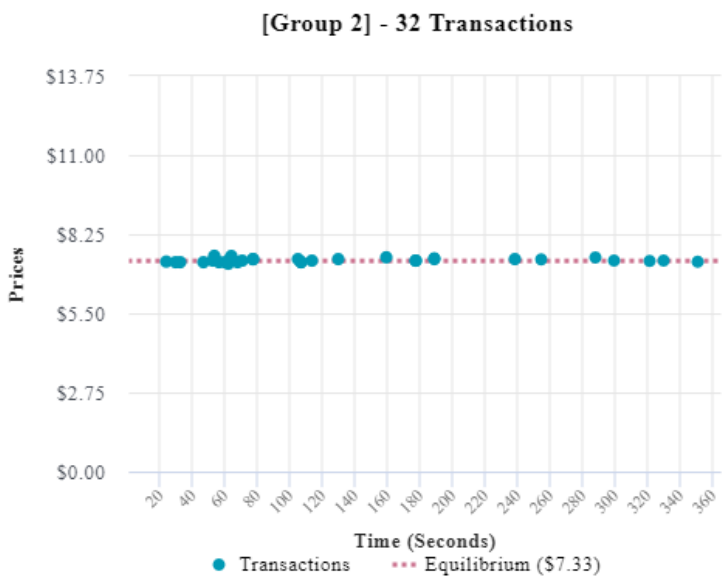


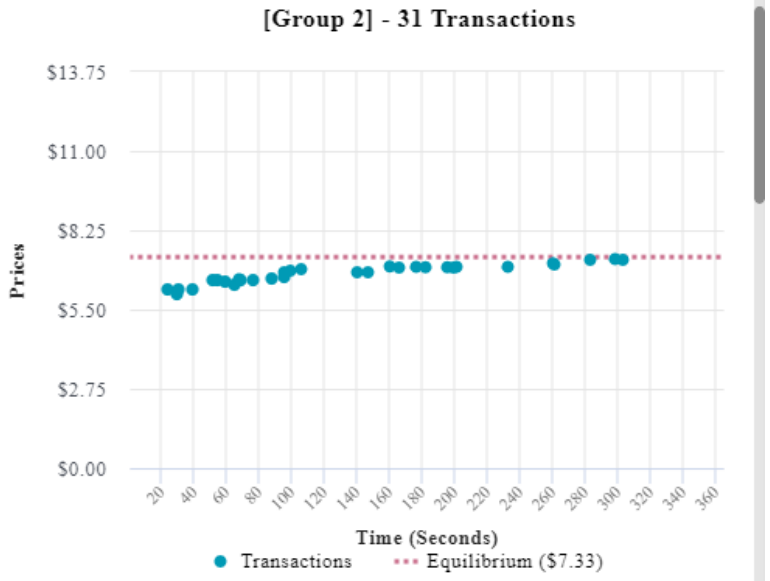
Fri – Group 1

Period 5 – 6: tax on buyers (Eq. Price = $6.16; Price Buyers Pay in Eq. = $8.15)

Group 2

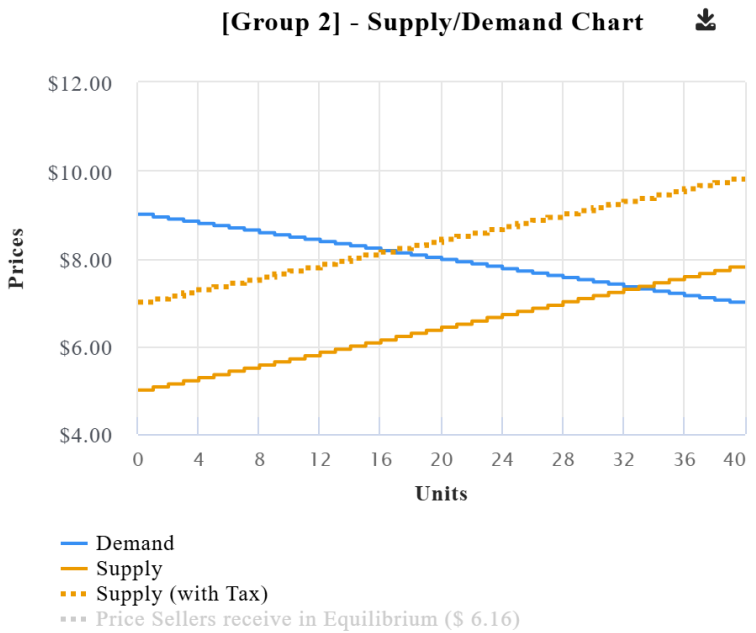


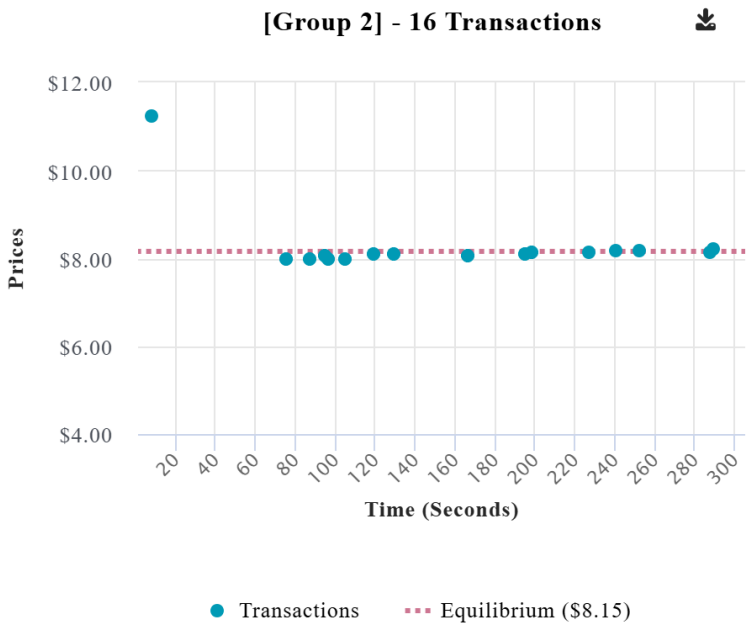


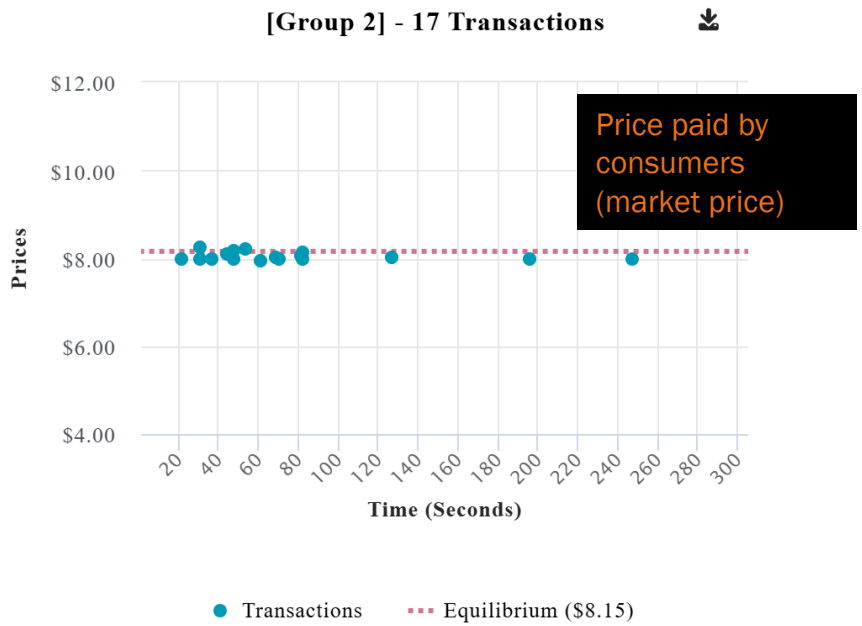


Fri – Group 2

Period 1 – 2: No tax (Eq. Price: $7.33)

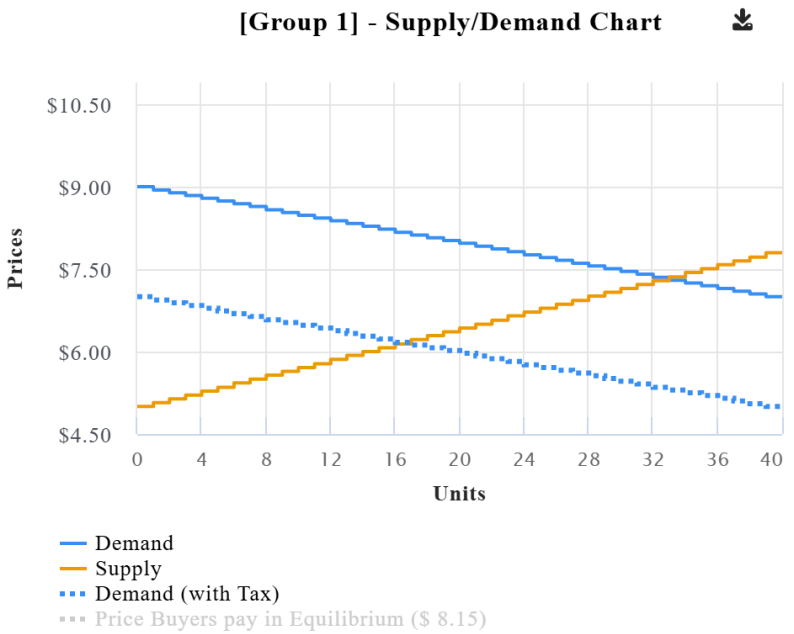


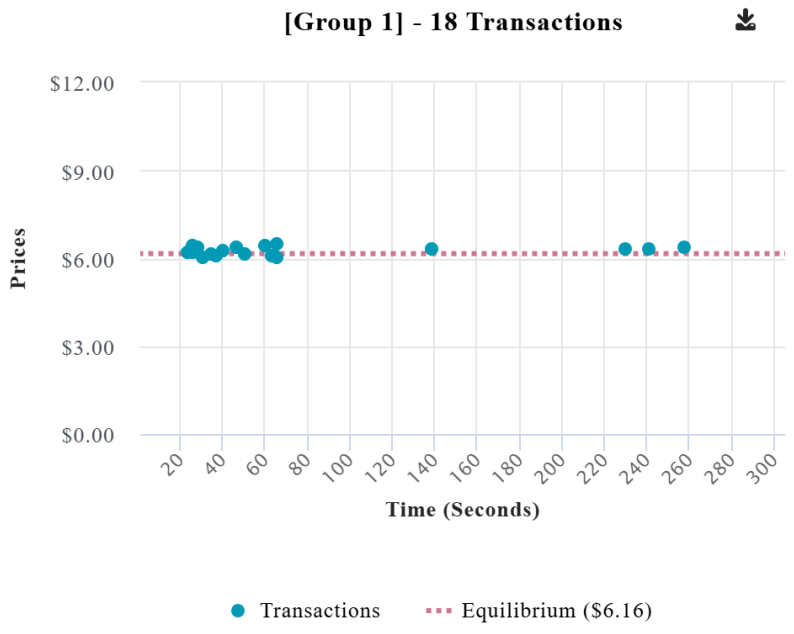


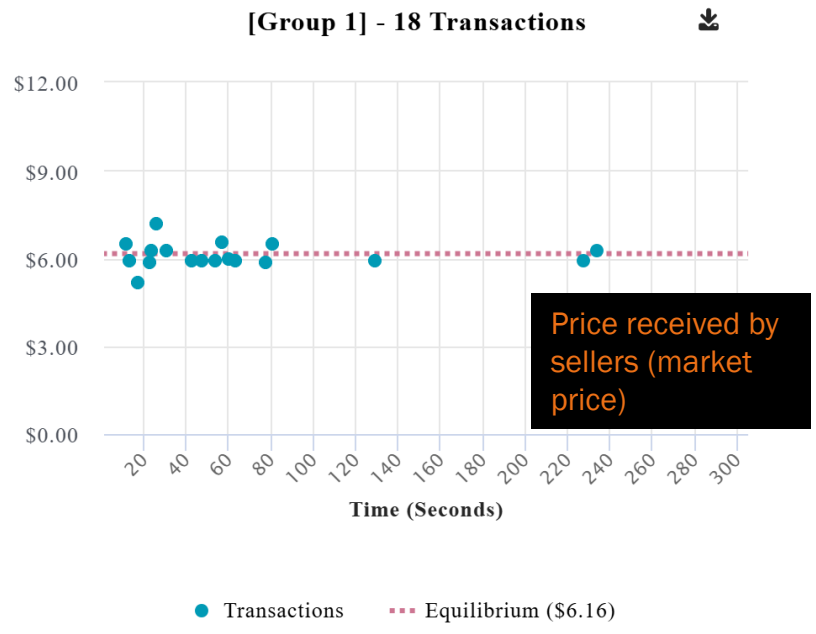


Fri – Group 2

Period 3 – 4: tax on sellers (Eq. Price = $8.15; Price Sellers Receive in Eq. = $6.16)

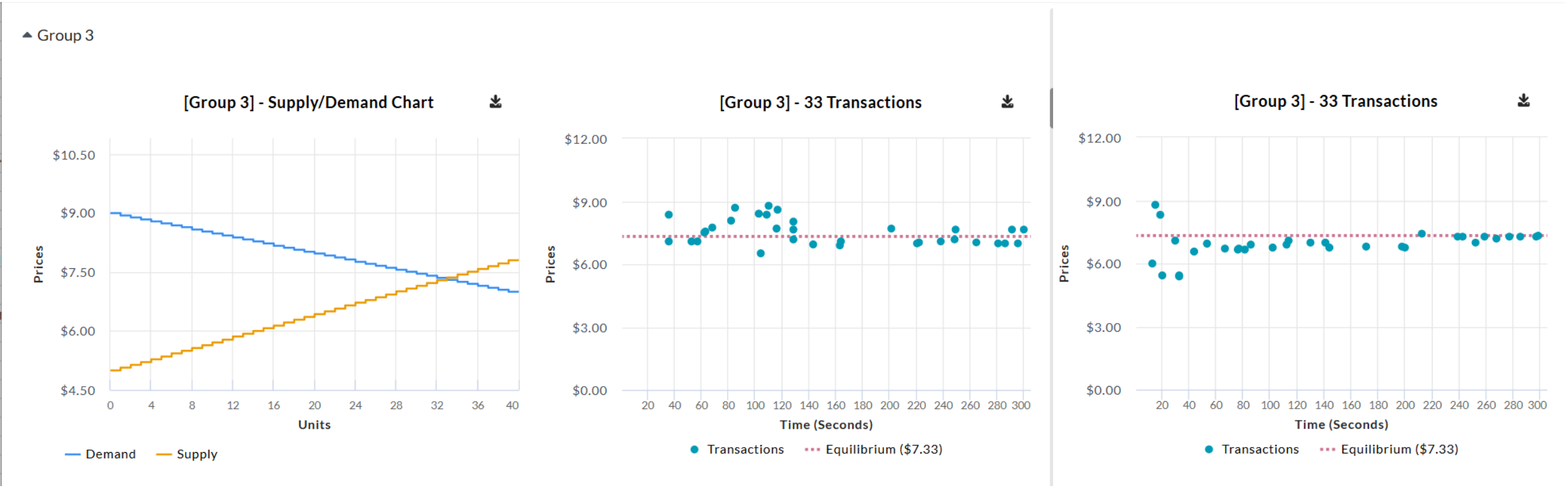






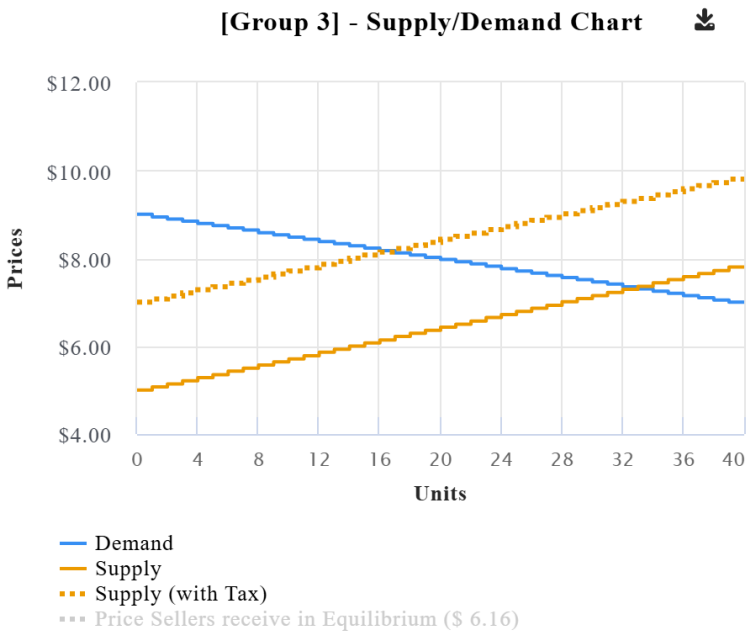
Fri – Group 2

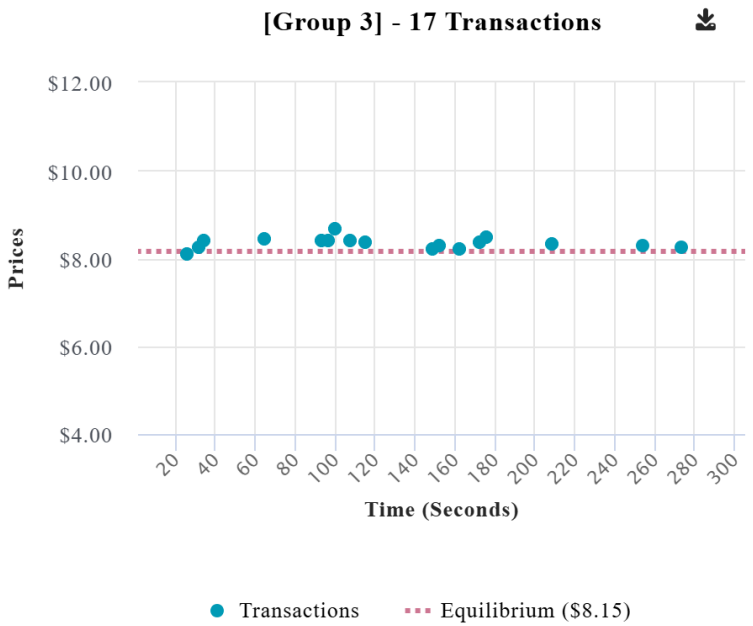
Period 5 – 6: tax on buyers (Eq. Price = $6.16; Price Buyers Pay in Eq. = $8.15)

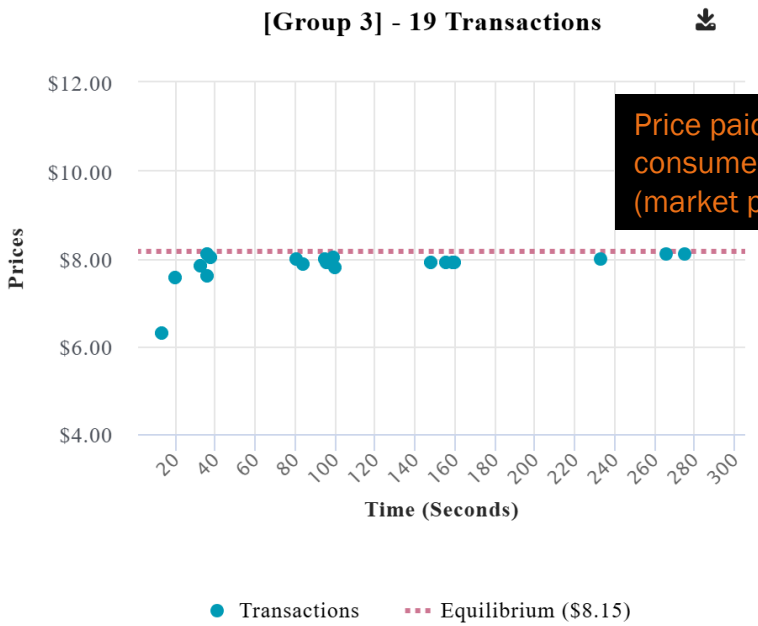


Fri – Group 3

Period 1 – 2: No tax (Eq. Price: $7.33)

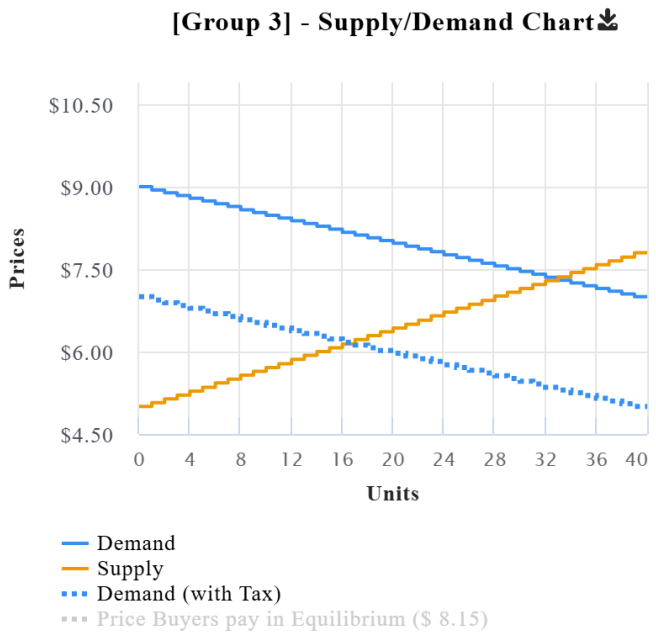


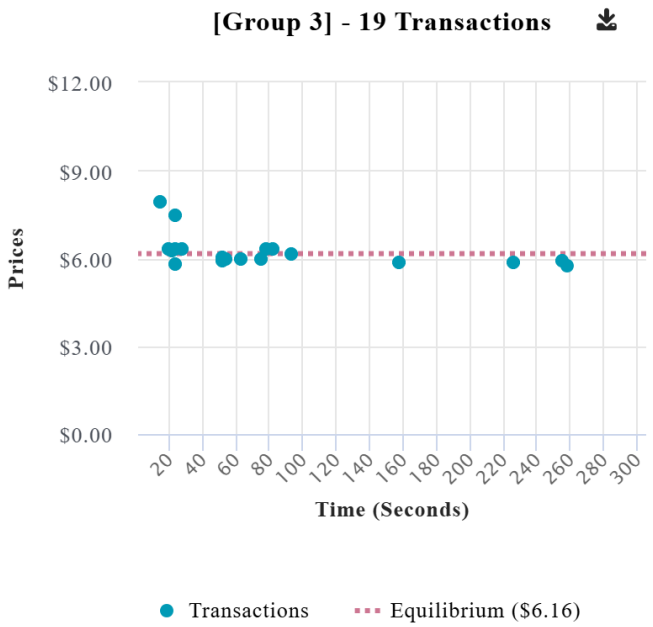


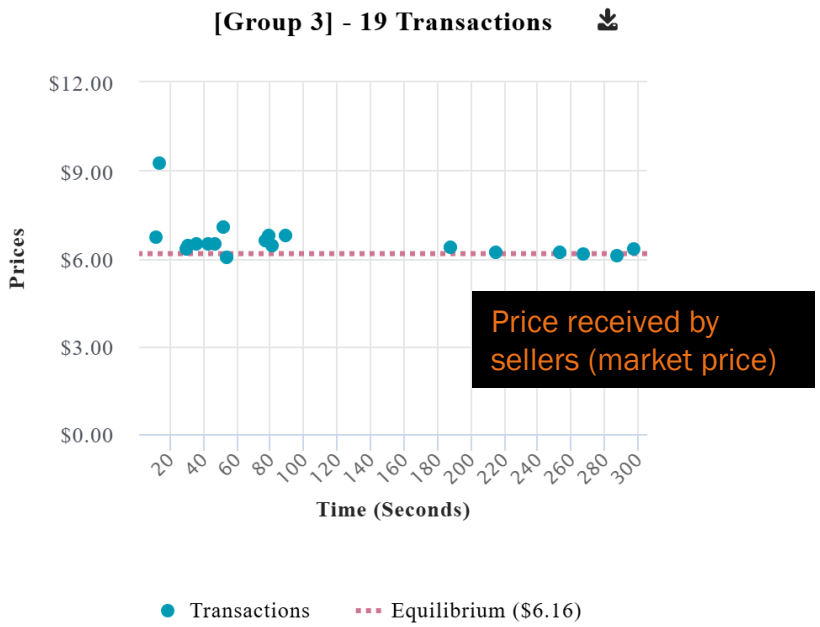


Fri – Group 3

Period 3 – 4: tax on sellers (Eq. Price = $8.15; Price Sellers Receive in Eq. = $6.16)

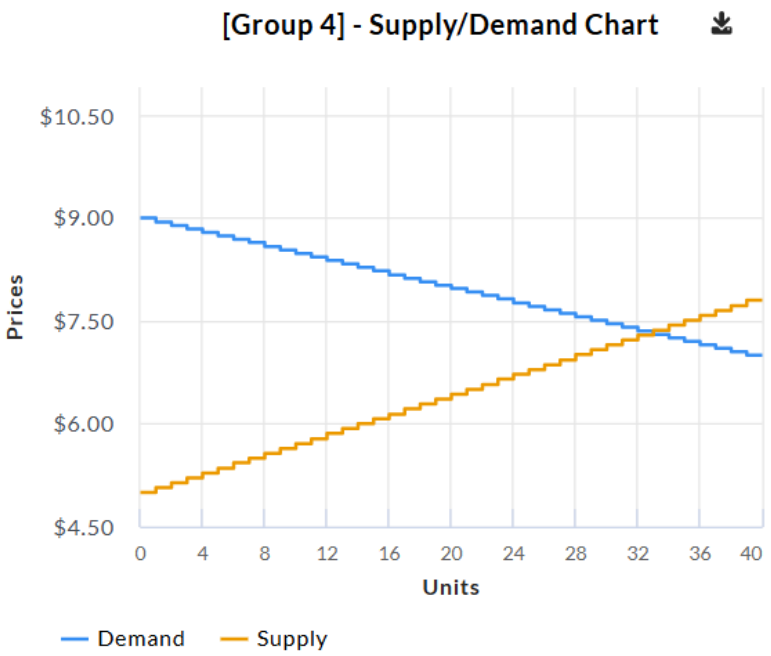


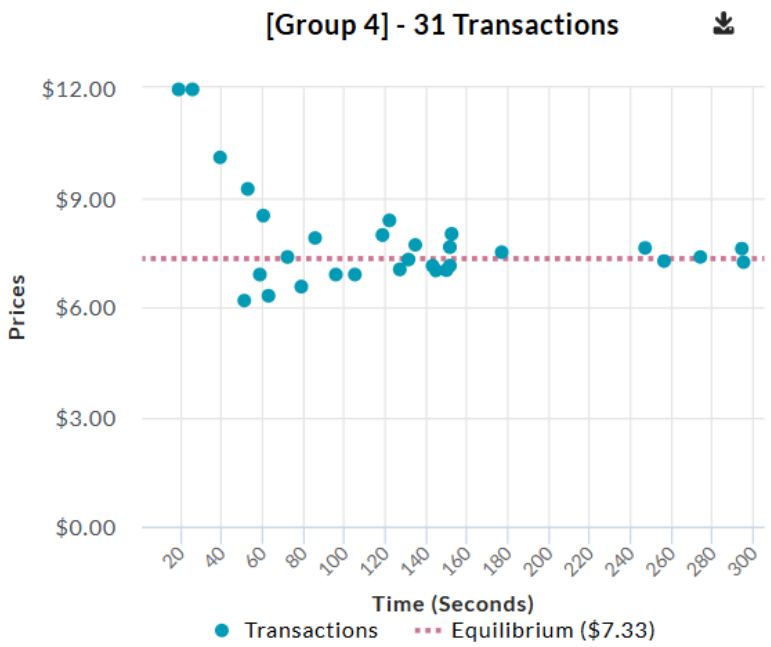


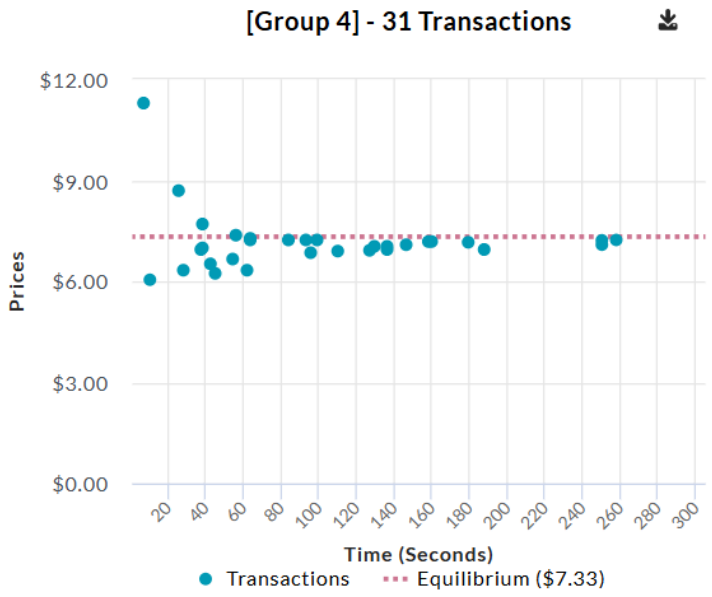


Fri – Group 3

Period 5 – 6: tax on buyers (Eq. Price = $6.16; Price Buyers Pay in Eq. = $8.15)

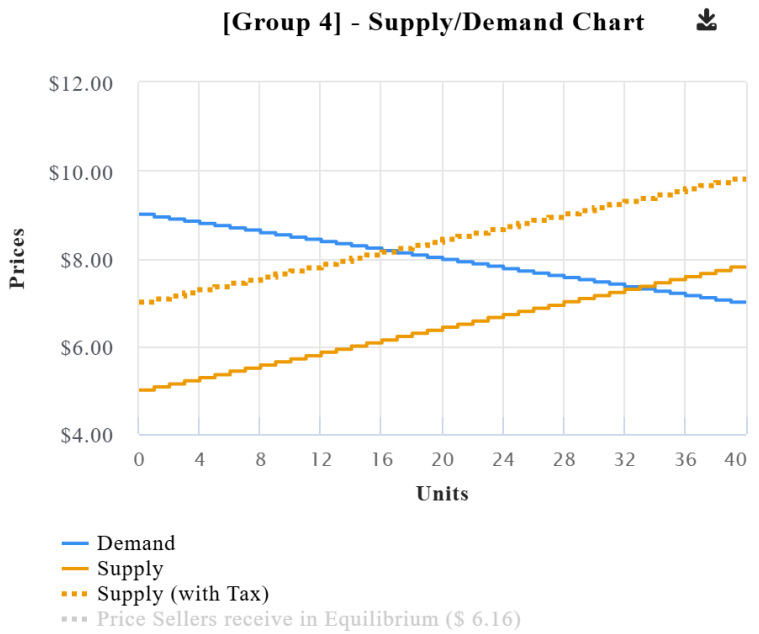


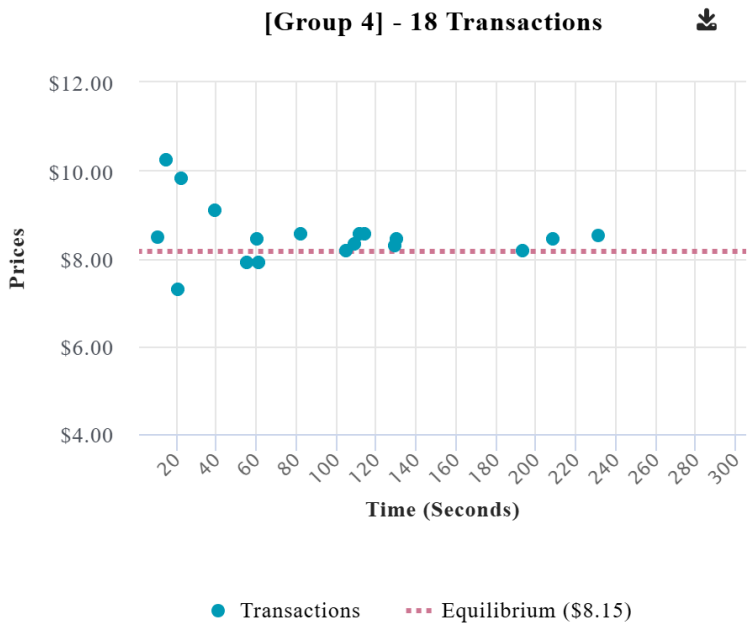


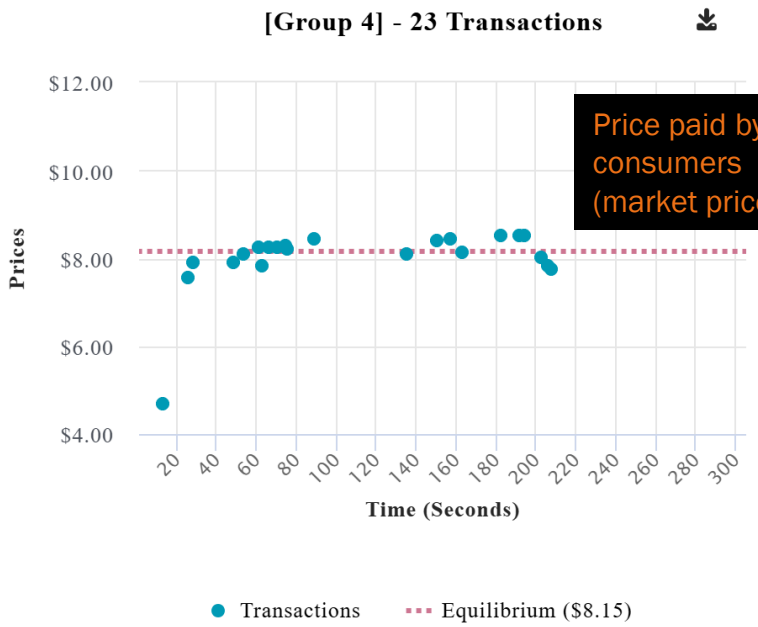


Fri – Group 4

Period 1 – 2: No tax (Eq. Price: $7.33)

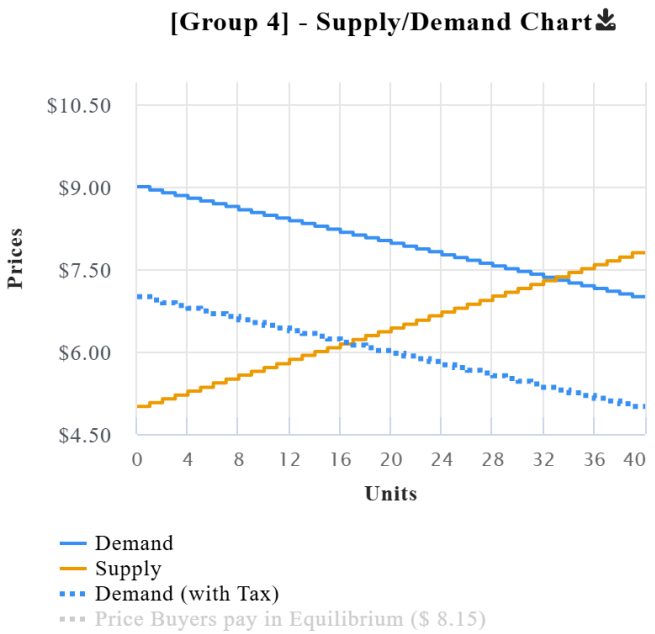


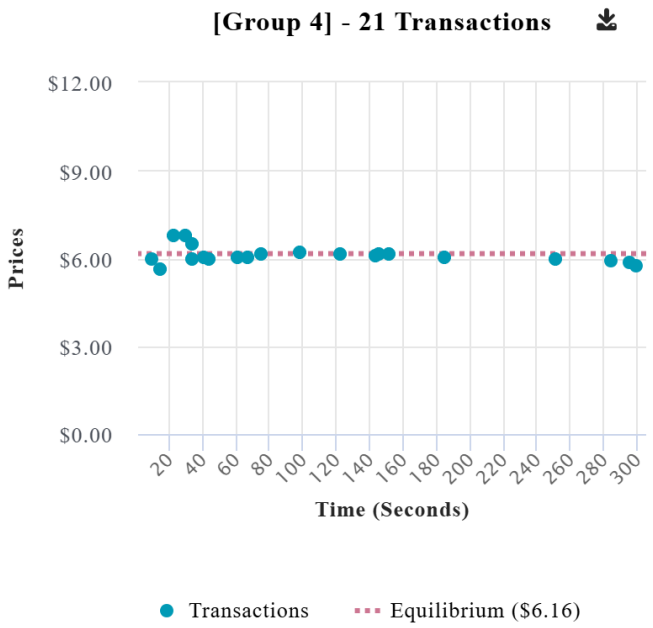


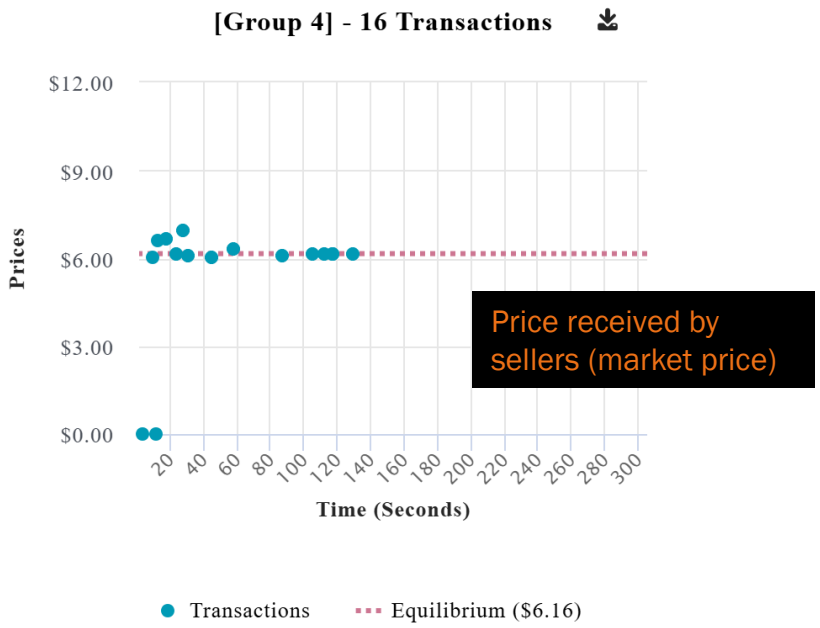


Fri – Group 4

Period 3 – 4: tax on sellers (Eq. Price = $8.15; Price Sellers Receive in Eq. = $6.16)

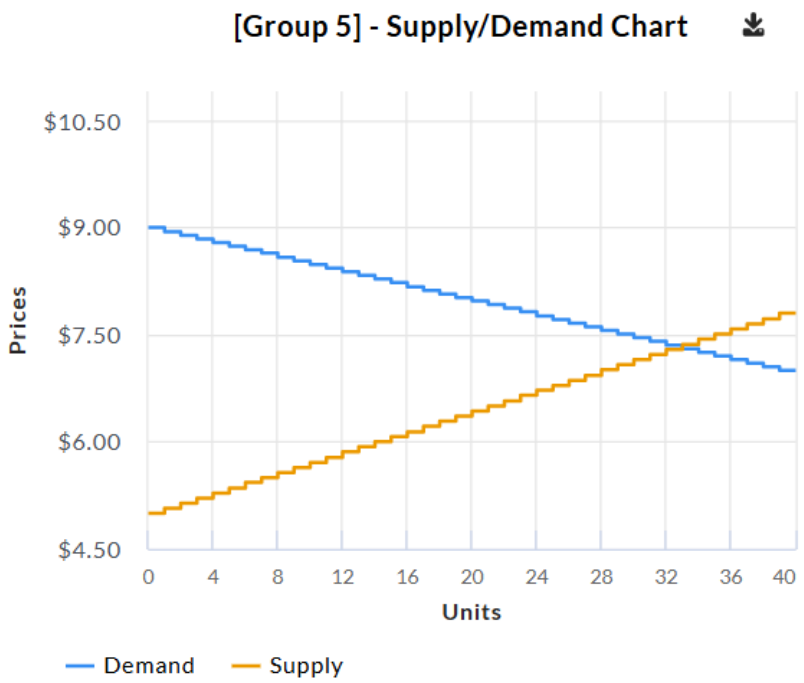


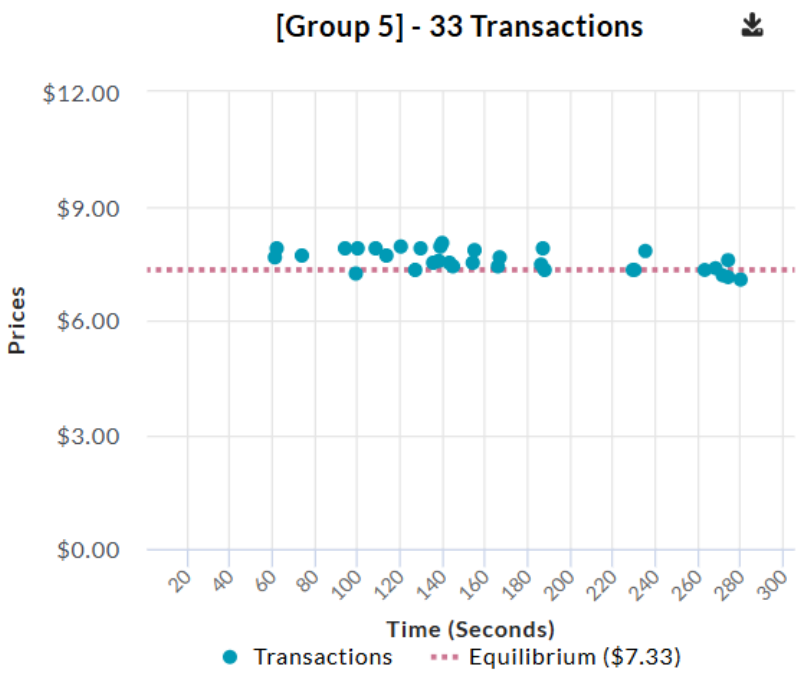


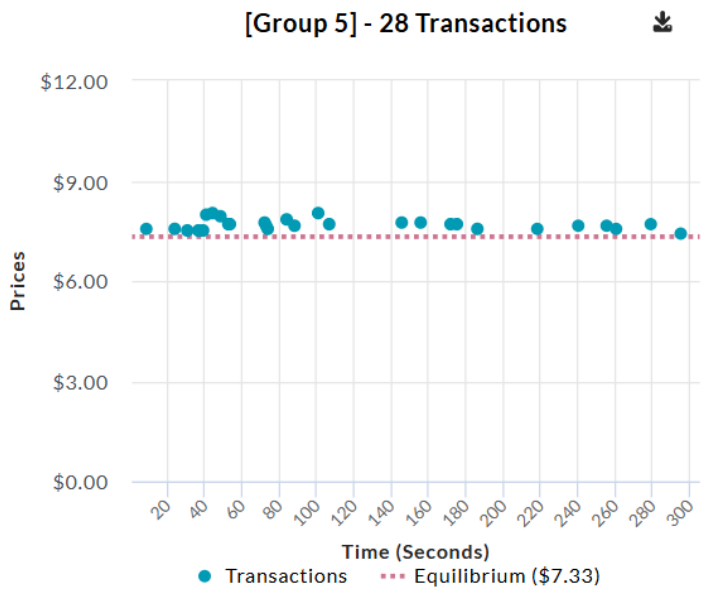


Fri – Group 4

Period 5 – 6: tax on buyers (Eq. Price = $6.16; Price Buyers Pay in Eq. = $8.15)

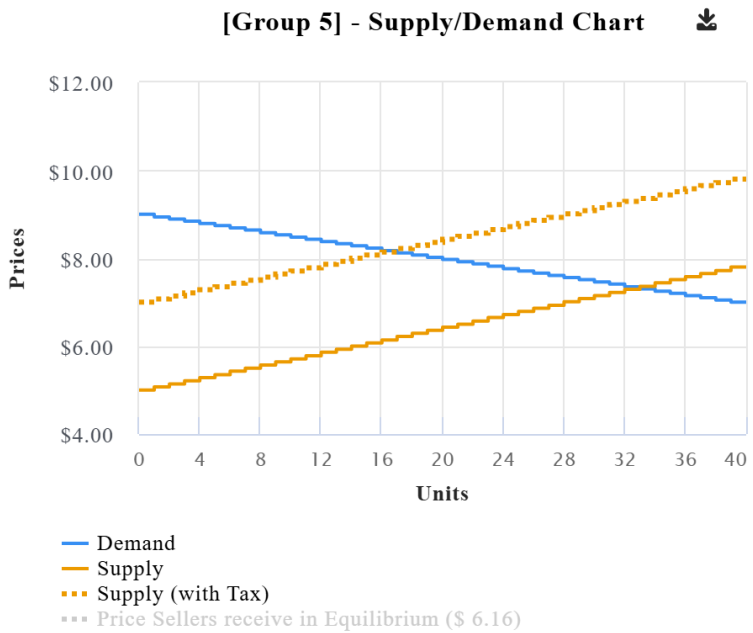


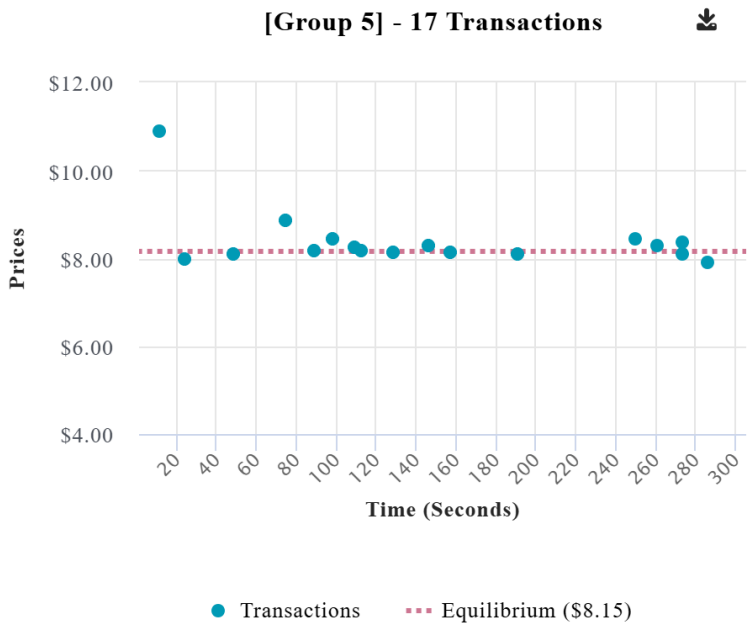


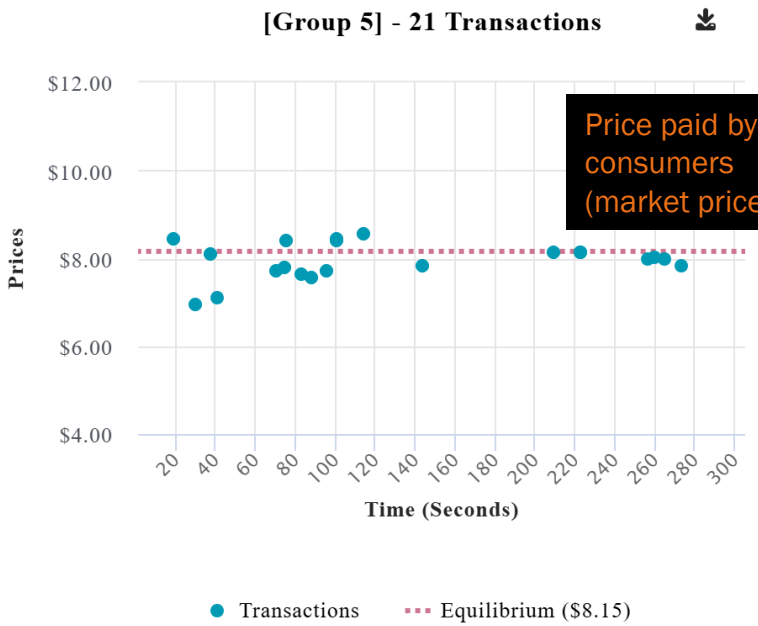


Fri – Group 5

Period 1 – 2: No tax (Eq. Price: $7.33)



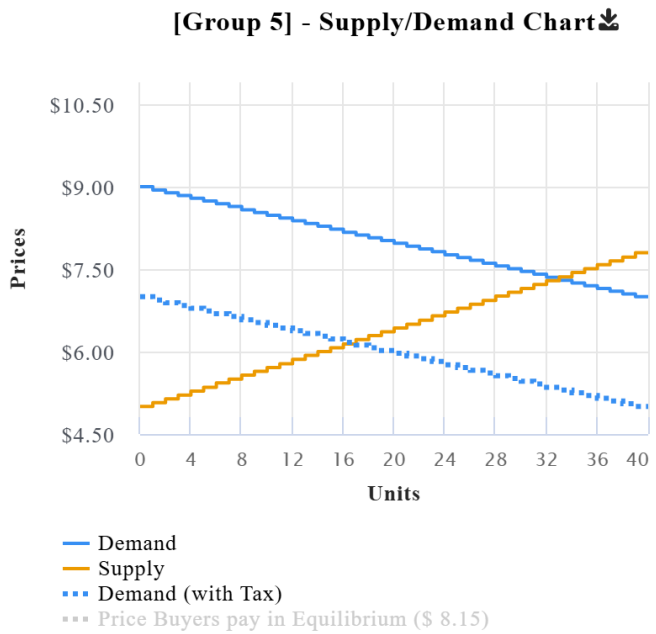


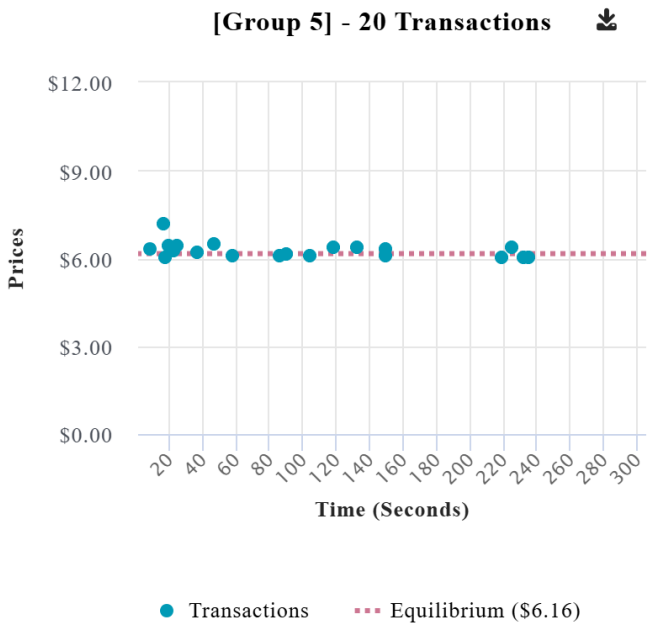


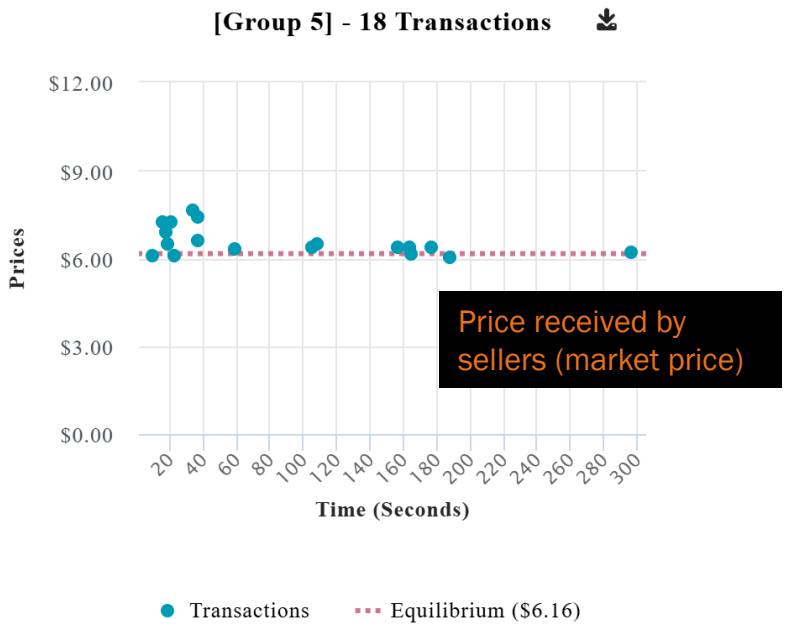
Price paid by consumers (market price)

Fri – Group 5

Period 3 – 4: tax on sellers (Eq. Price = $8.15; Price Sellers Receive in Eq. = $6.16)



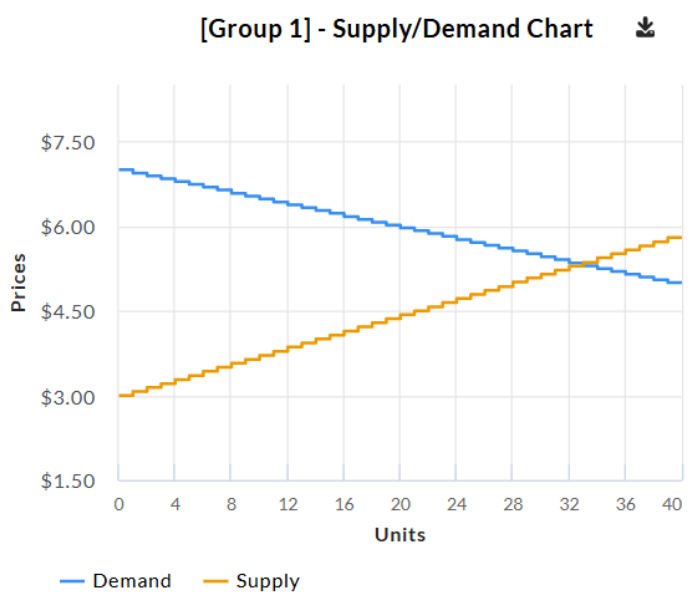


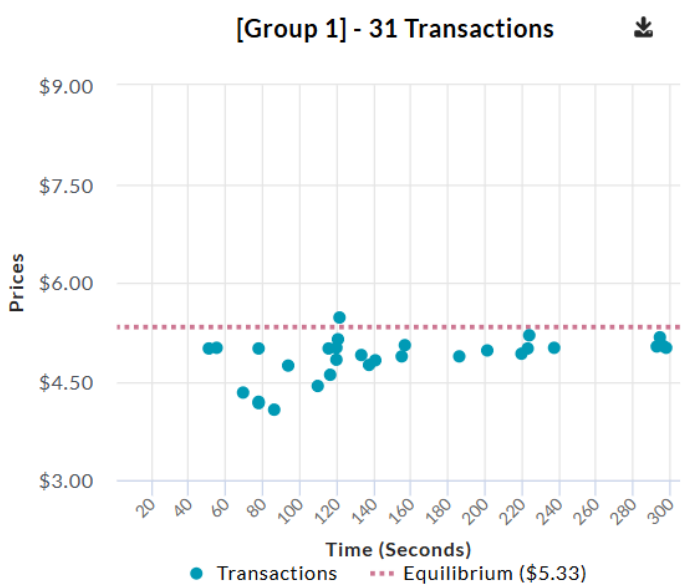


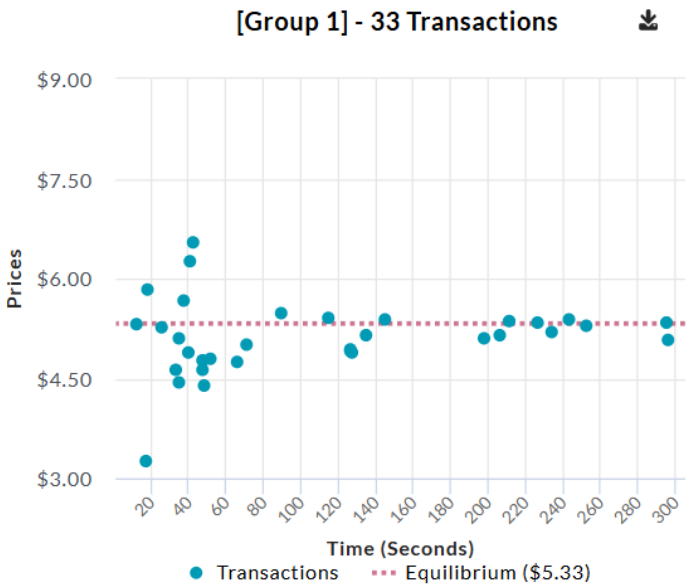
Fri – Group 5

Period 5 – 6: tax on buyers (Eq. Price = $6.16; Price Buyers Pay in Eq. = $8.15)

▲ Group 1

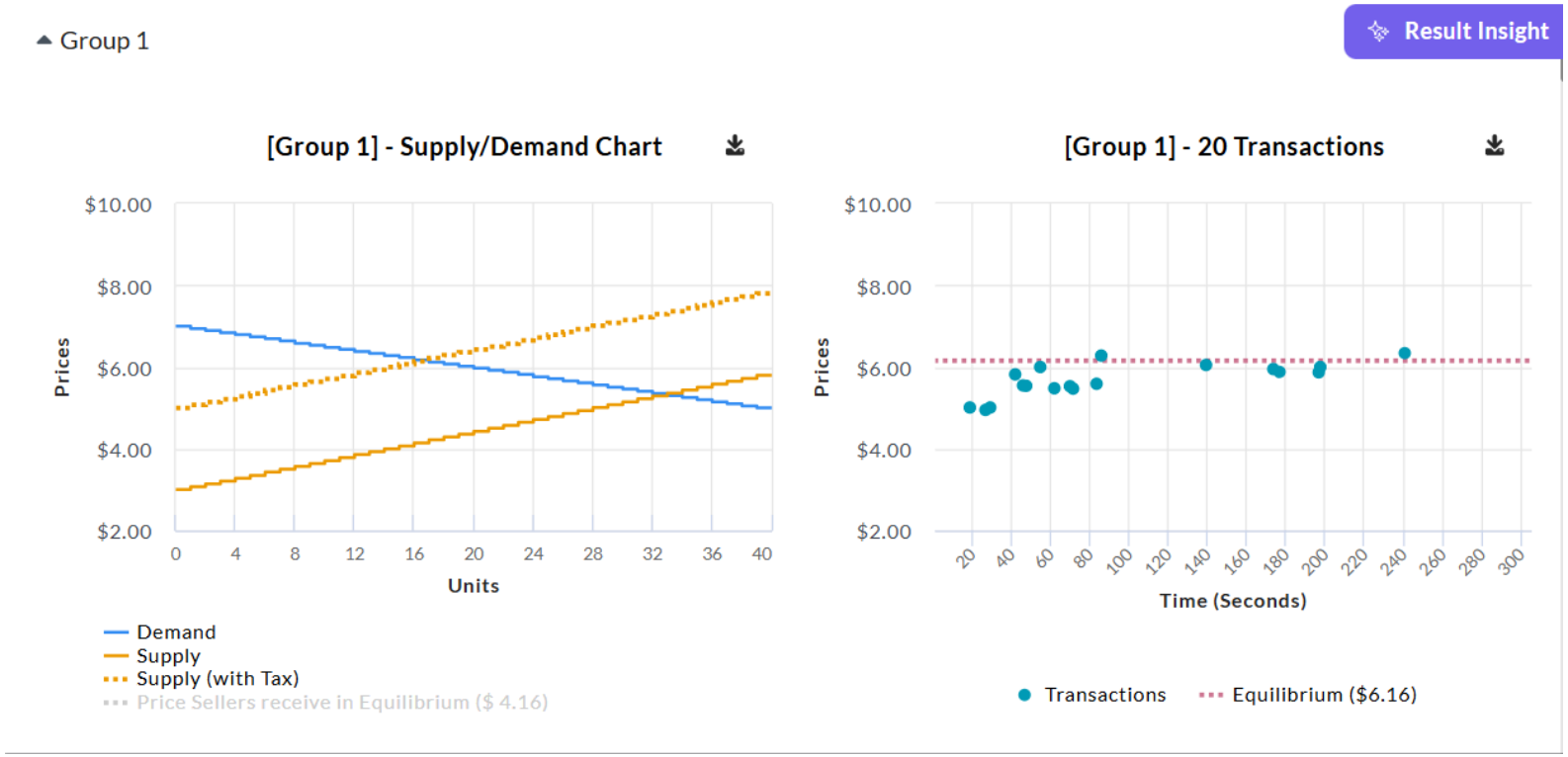


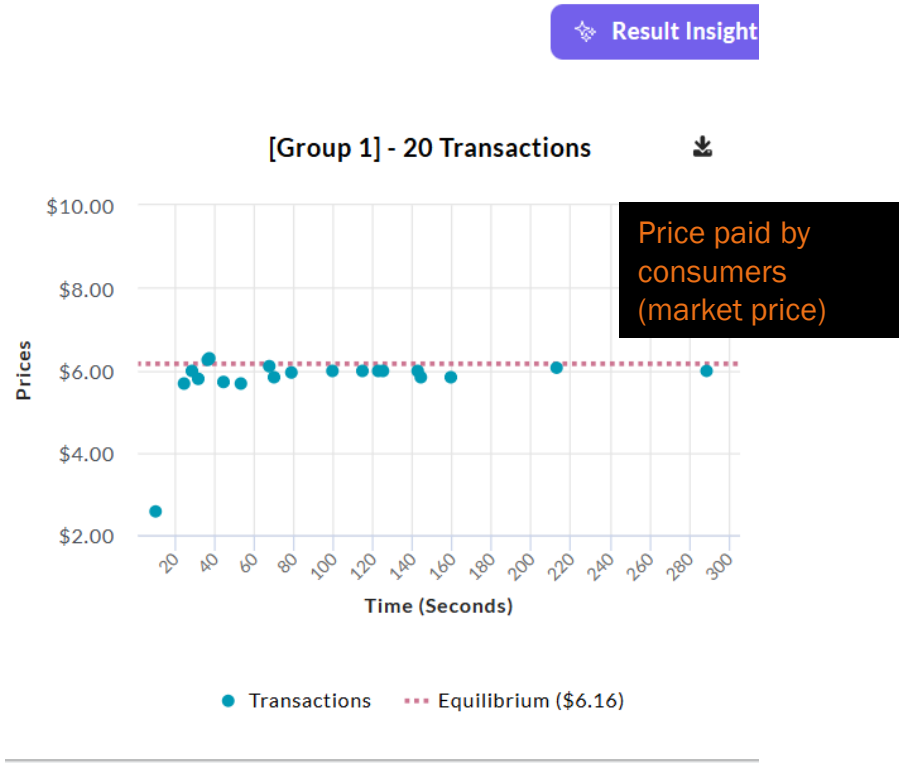




Wed am – Group 1

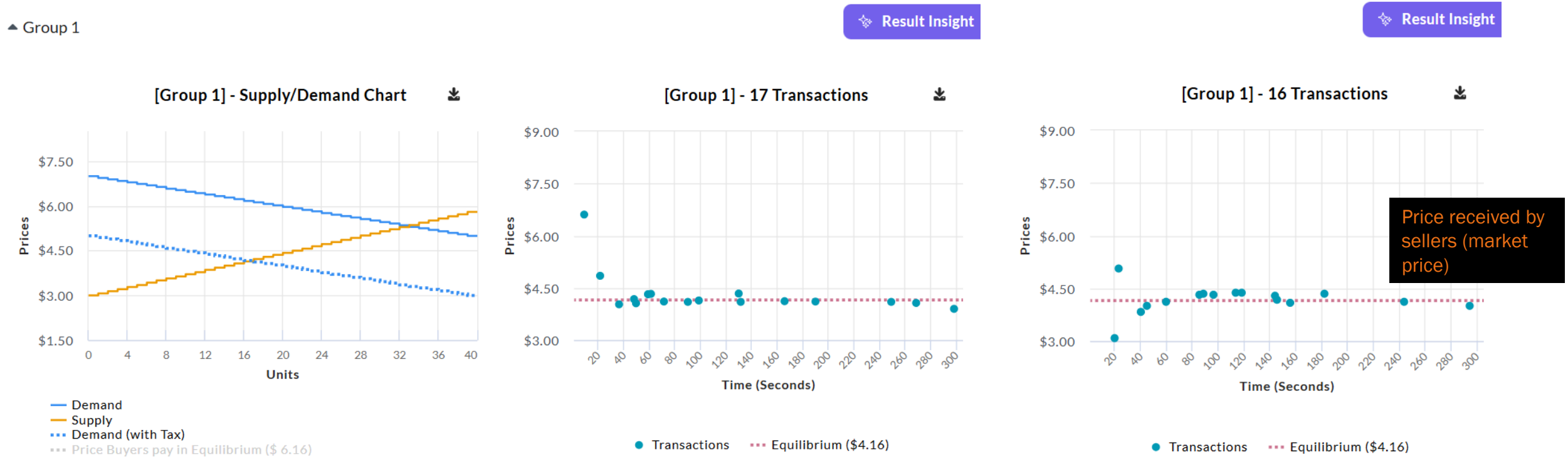
Period 1 – 2: No tax (Eq. Price: $5.33)





Wed am – Group 1

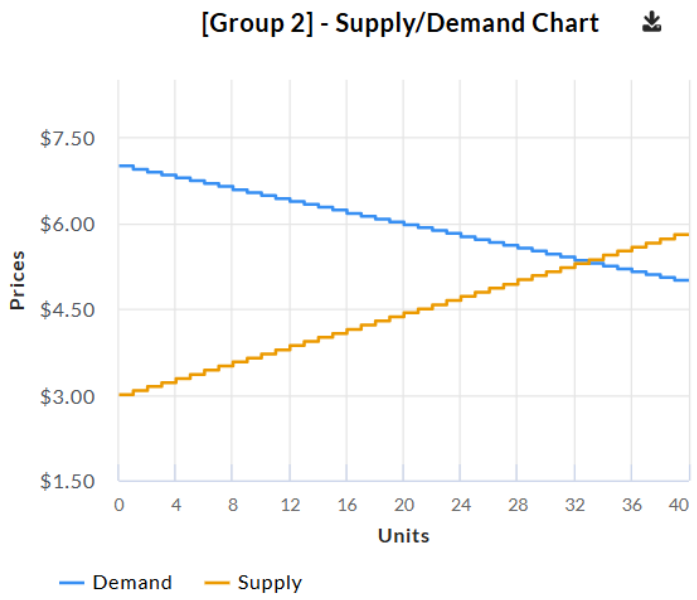
Period 3 – 4: tax on sellers (Eq. Price = $6.16; Price Sellers Receive in Eq. = $4.16)

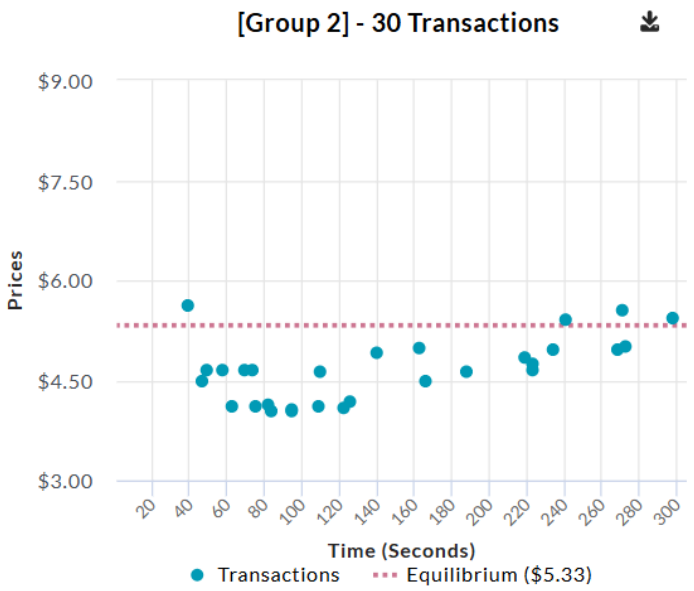


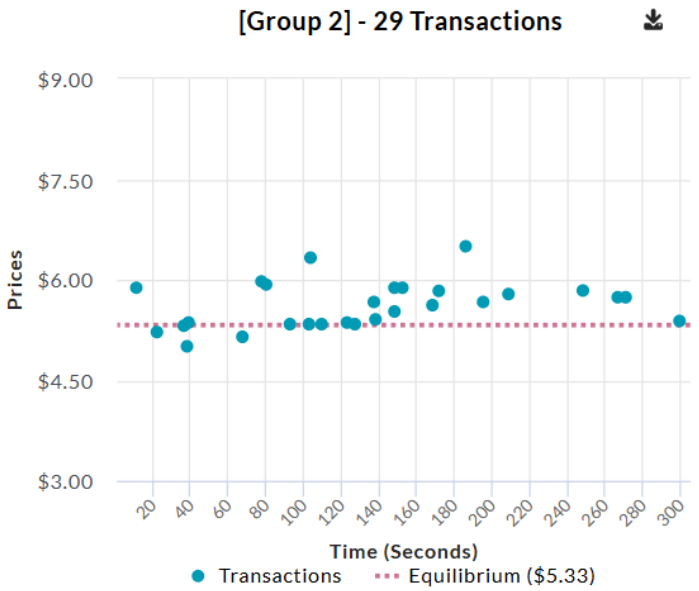
Wed am – Group 1

Period 5 – 6: tax on buyers (Eq. Price = $4.16; Price Buyers Pay in Eq. = $6.15)

▲ Group 2

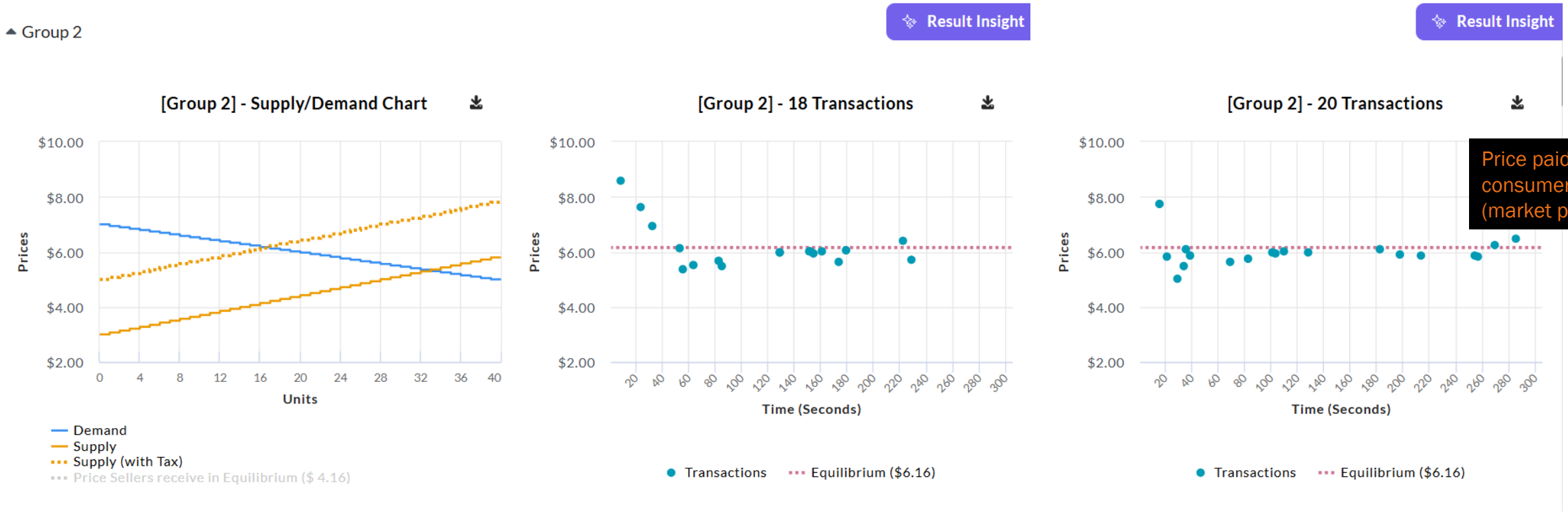






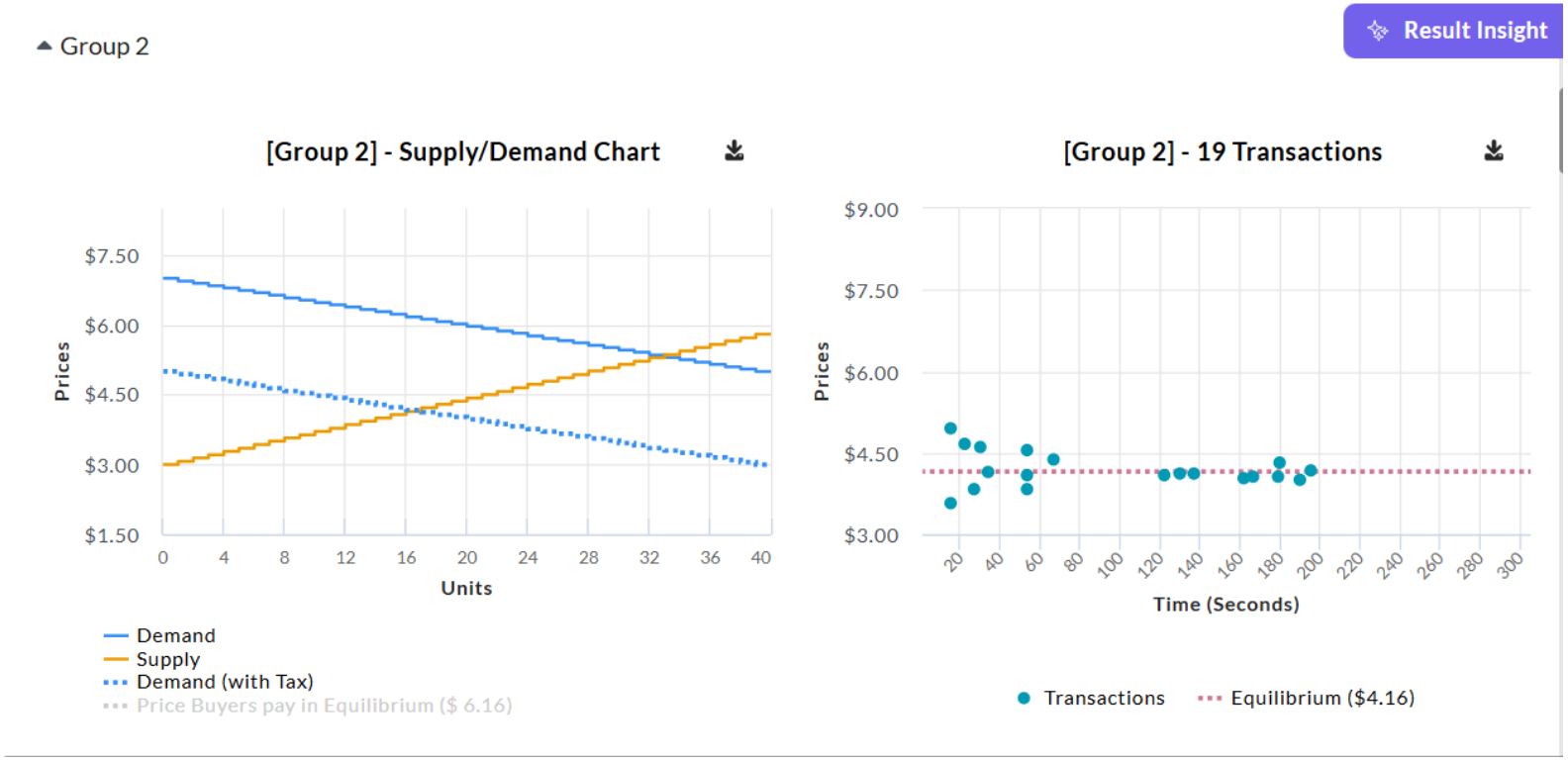
Wed am – Group 2

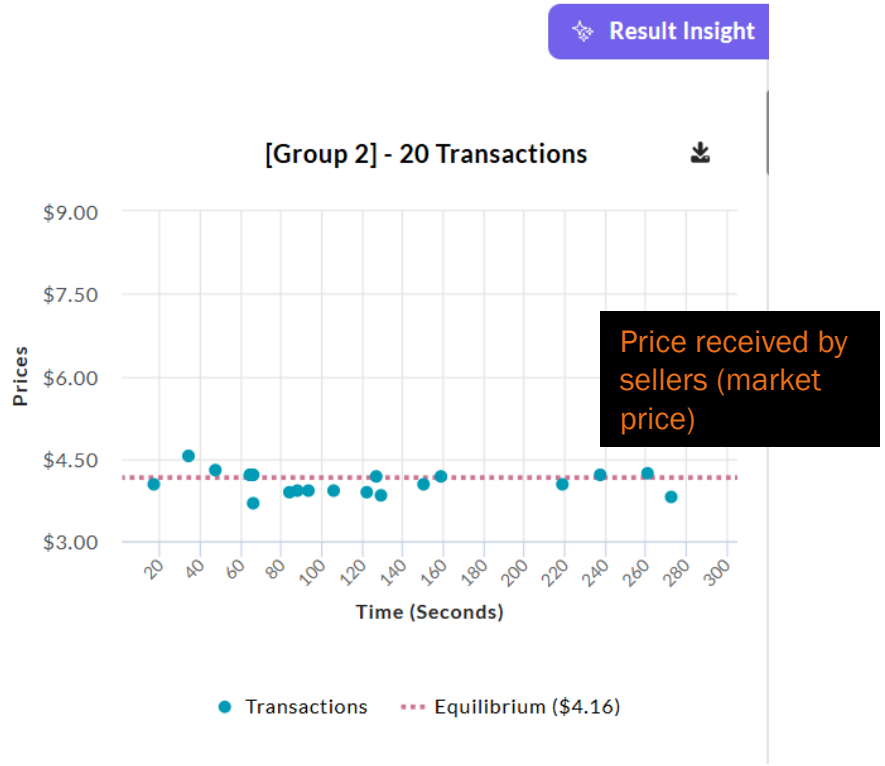
Period 1 – 2: No tax (Eq. Price: $5.33)



Wed am – Group 2

Period 3 – 4: tax on sellers (Eq. Price = $6.16; Price Sellers Receive in Eq. = $4.16)

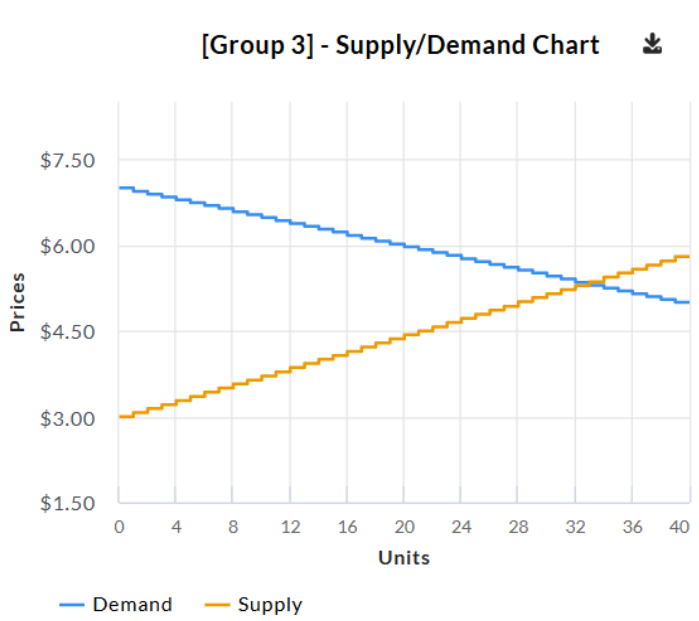


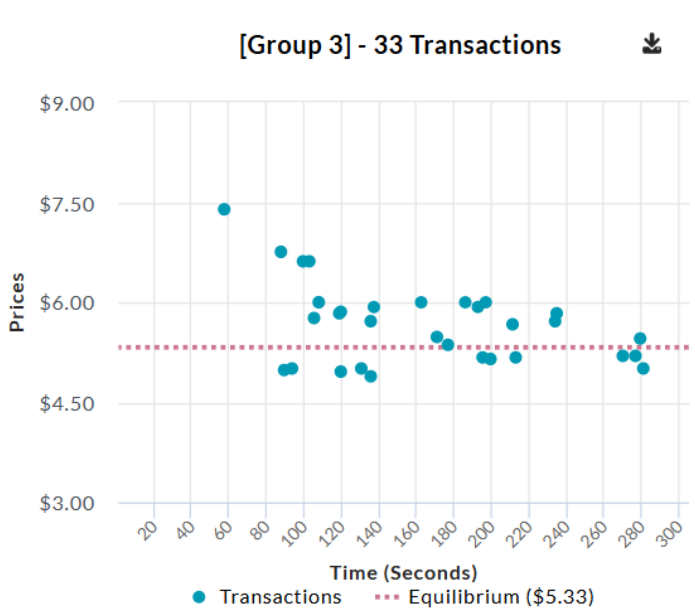


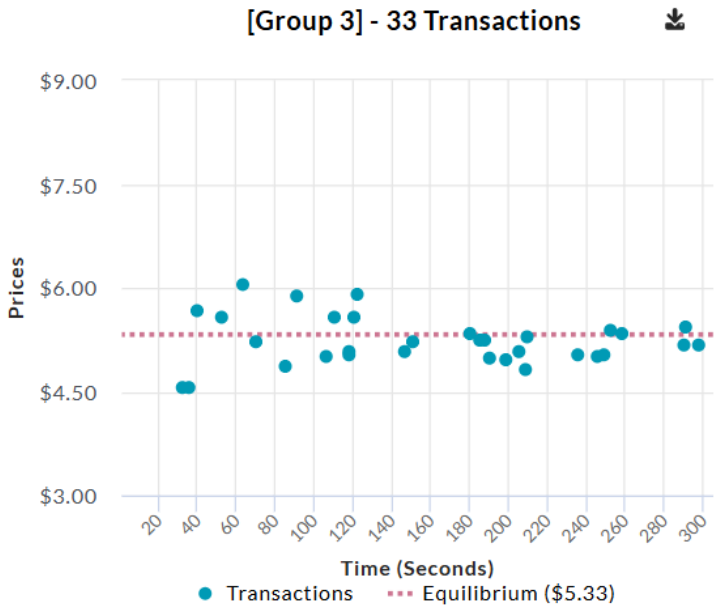
Wed am – Group 2

Period 5 – 6: tax on buyers (Eq. Price = $4.16; Price Buyers Pay in Eq. = $6.15)

Group 3

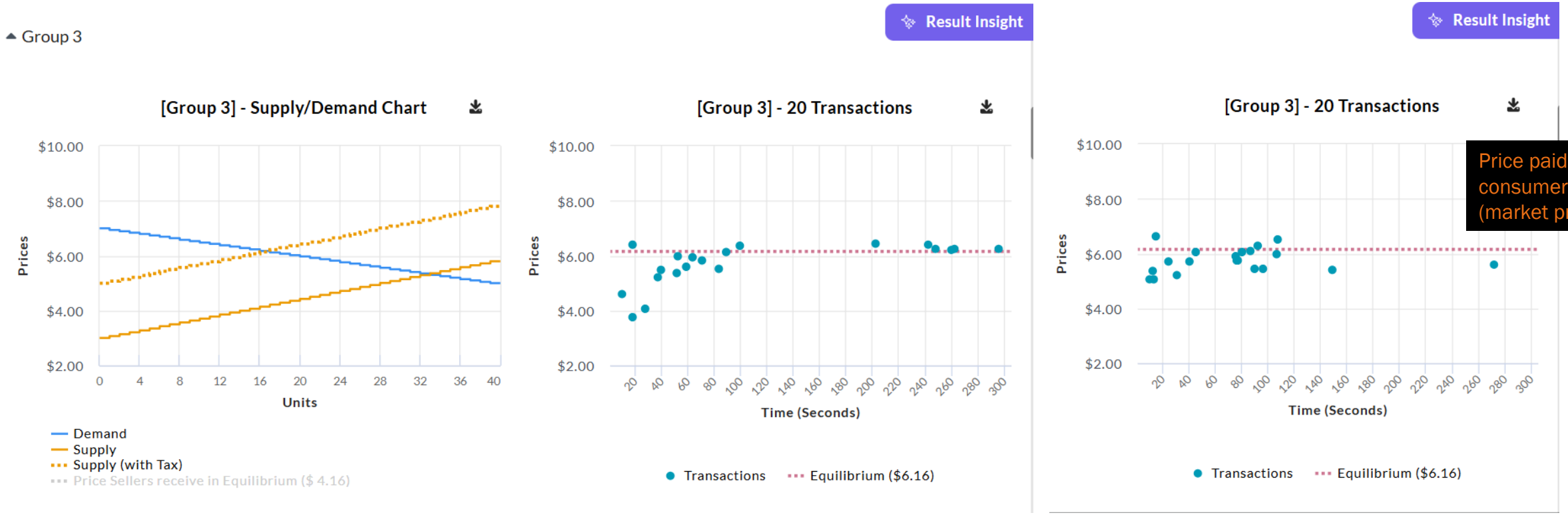






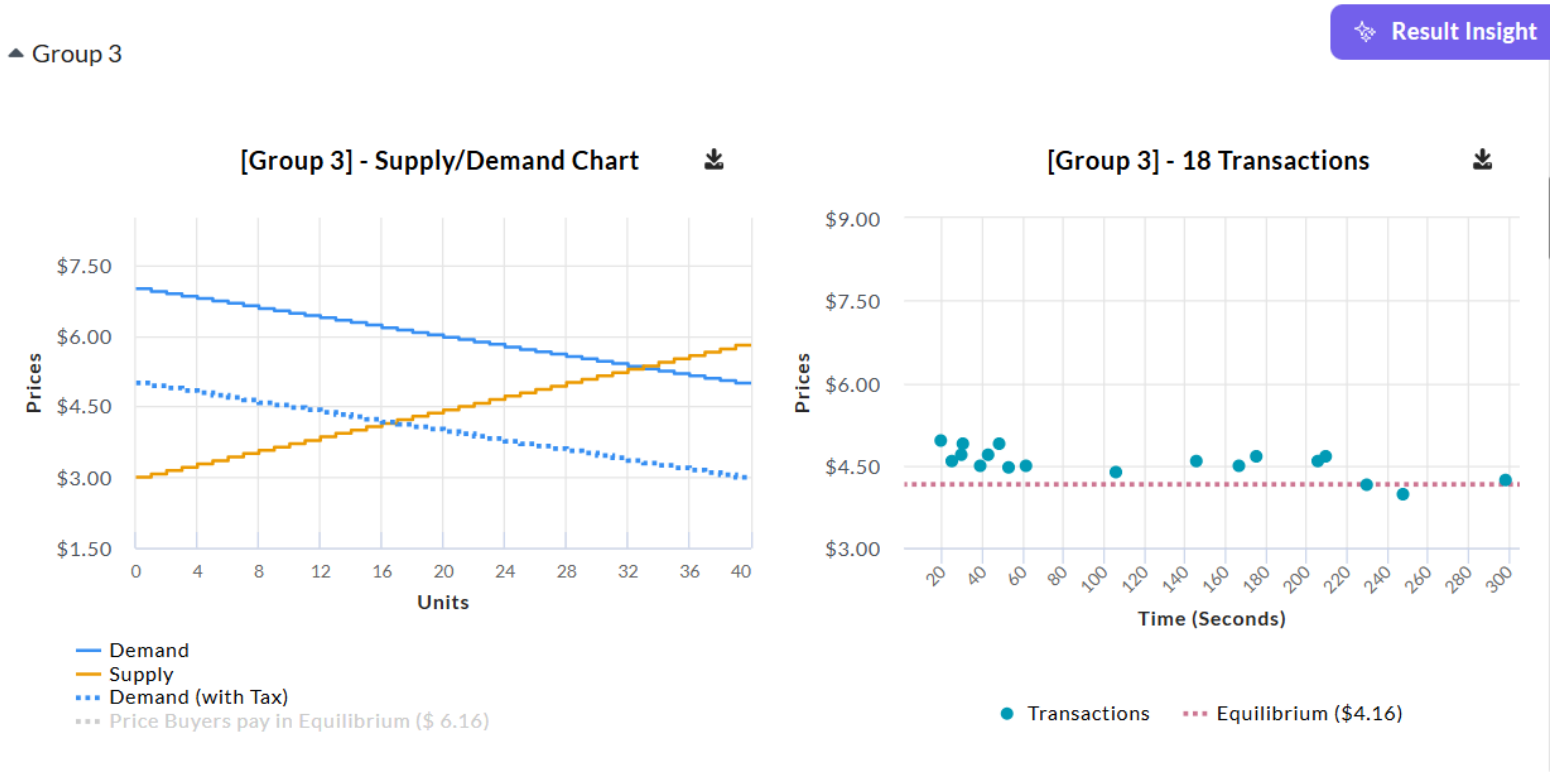
Wed am – Group 3

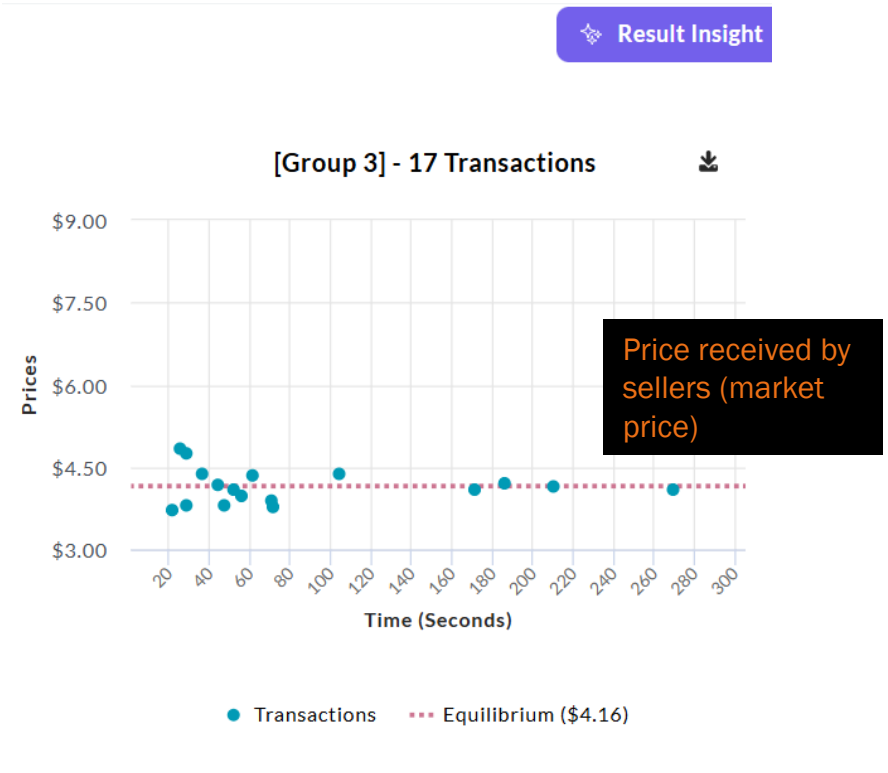
Period 1 – 2: No tax (Eq. Price: $5.33)



Wed am – Group 3

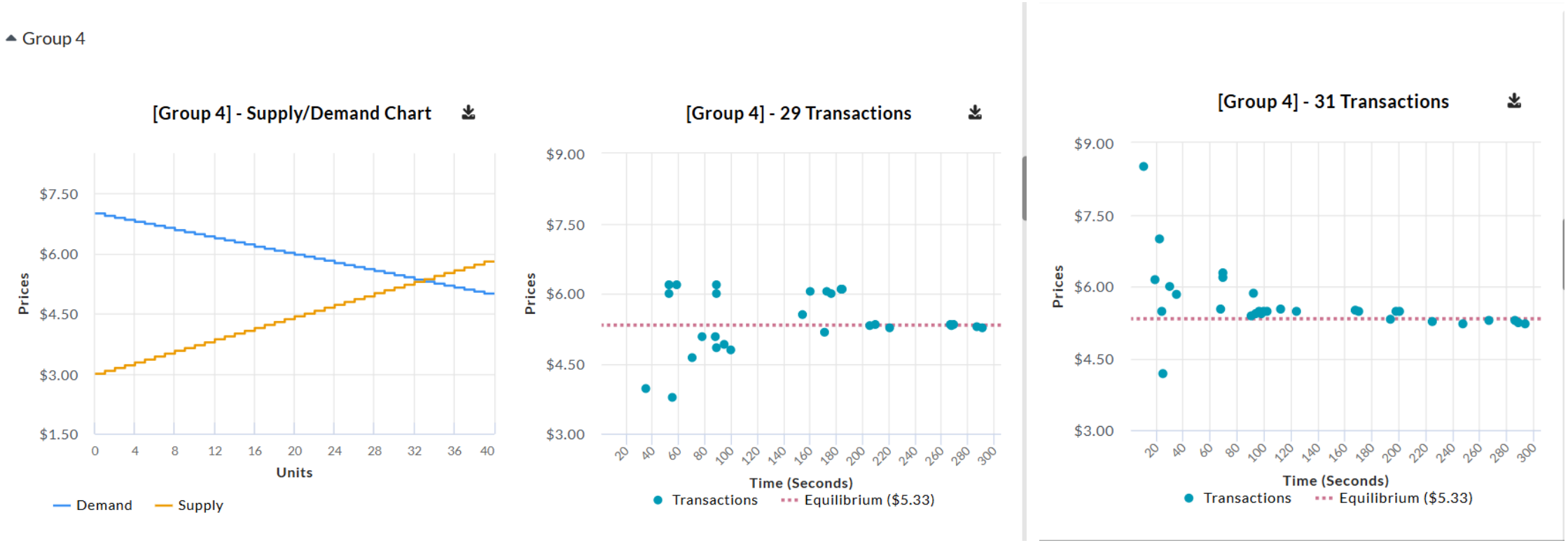
Period 3 – 4: tax on sellers (Eq. Price = $6.16; Price Sellers Receive in Eq. = $4.16)





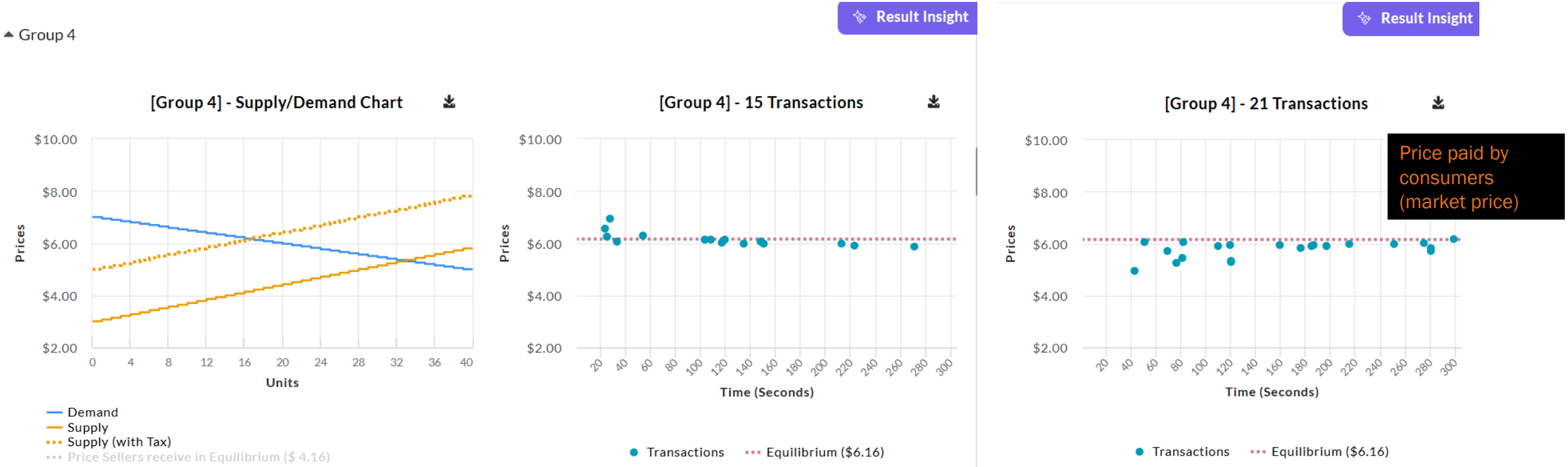
Wed am – Group 3

Period 5 – 6: tax on buyers (Eq. Price = $4.16; Price Buyers Pay in Eq. = $6.15)



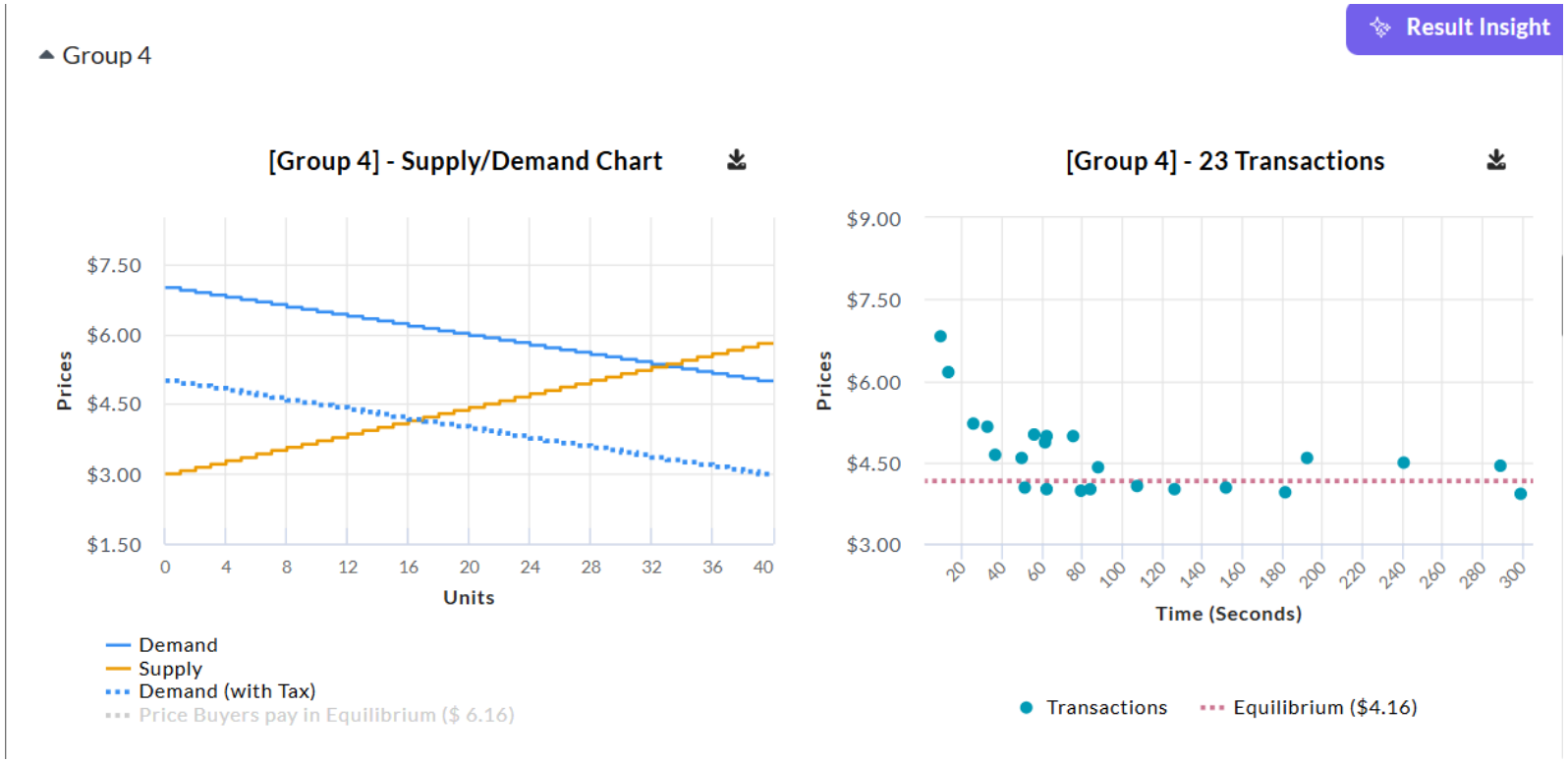
Wed am – Group 4

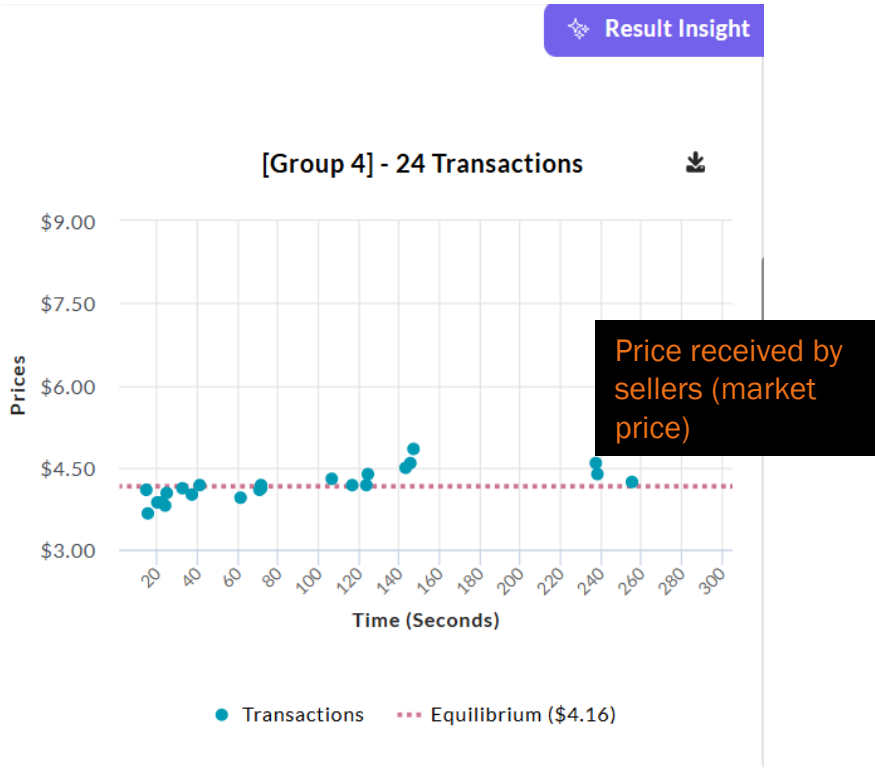
Period 1 – 2: No tax (Eq. Price: $5.33)



Wed am – Group 4

Period 3 – 4: tax on sellers (Eq. Price = $6.16; Price Sellers Receive in Eq. = $4.16)

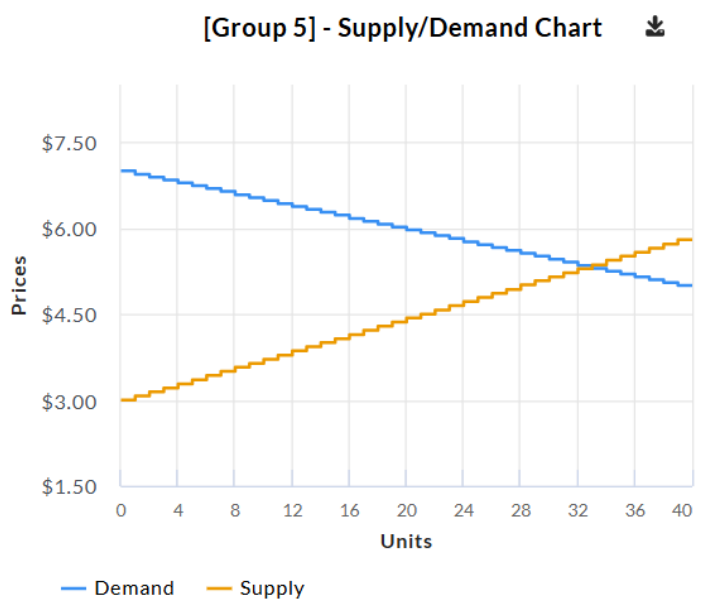


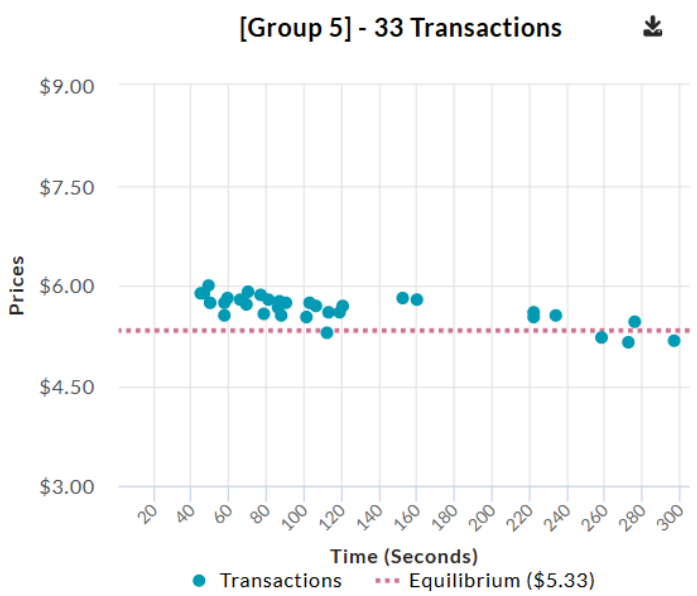


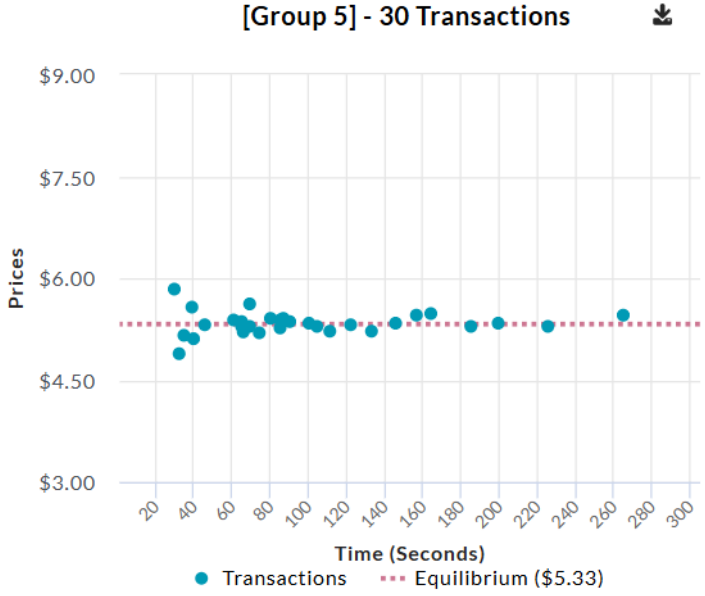
Wed am – Group 4

Period 5 – 6: tax on buyers (Eq. Price = $4.16; Price Buyers Pay in Eq. = $6.15)

Group 5

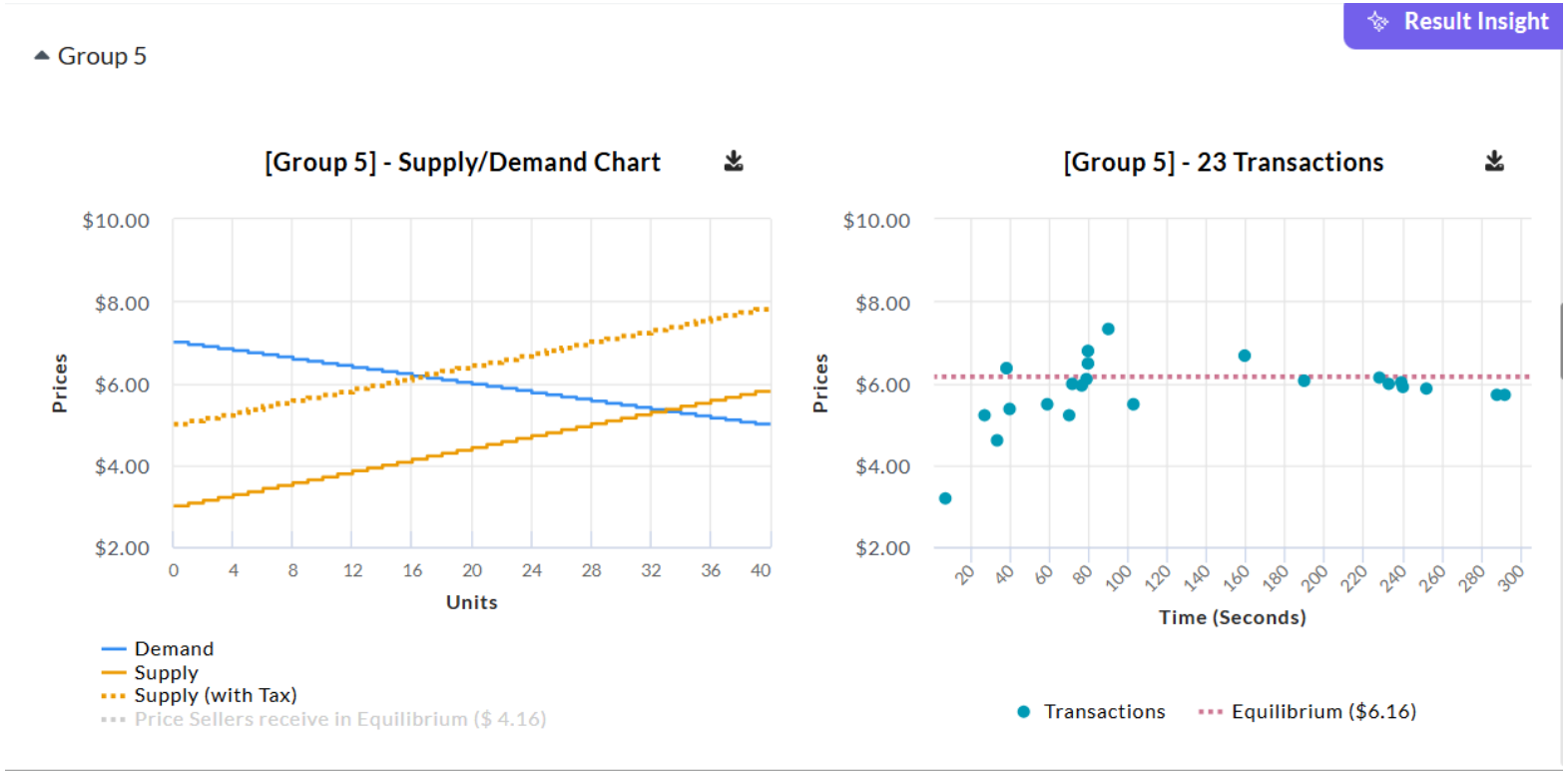


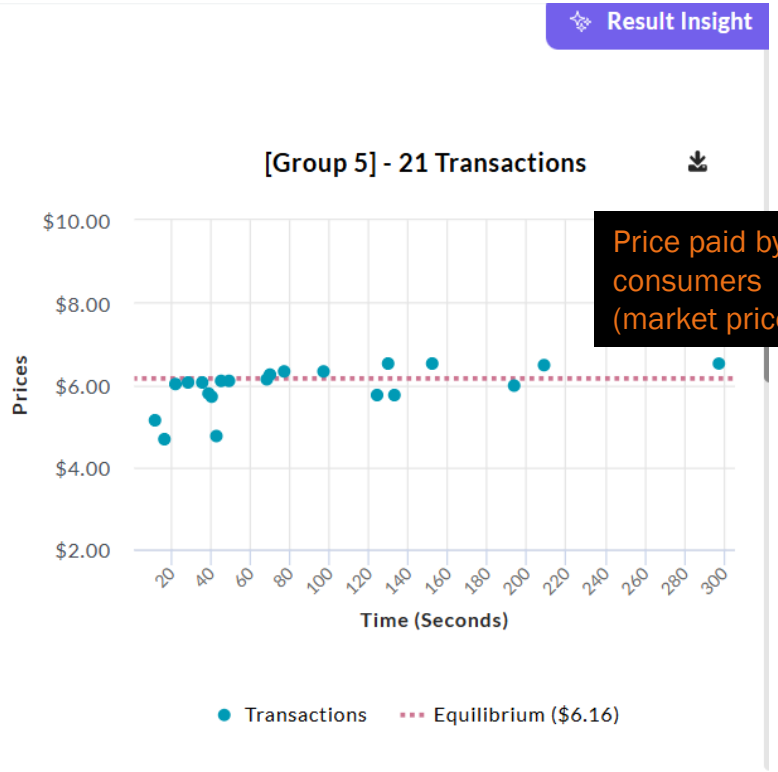




Wed am – Group 5

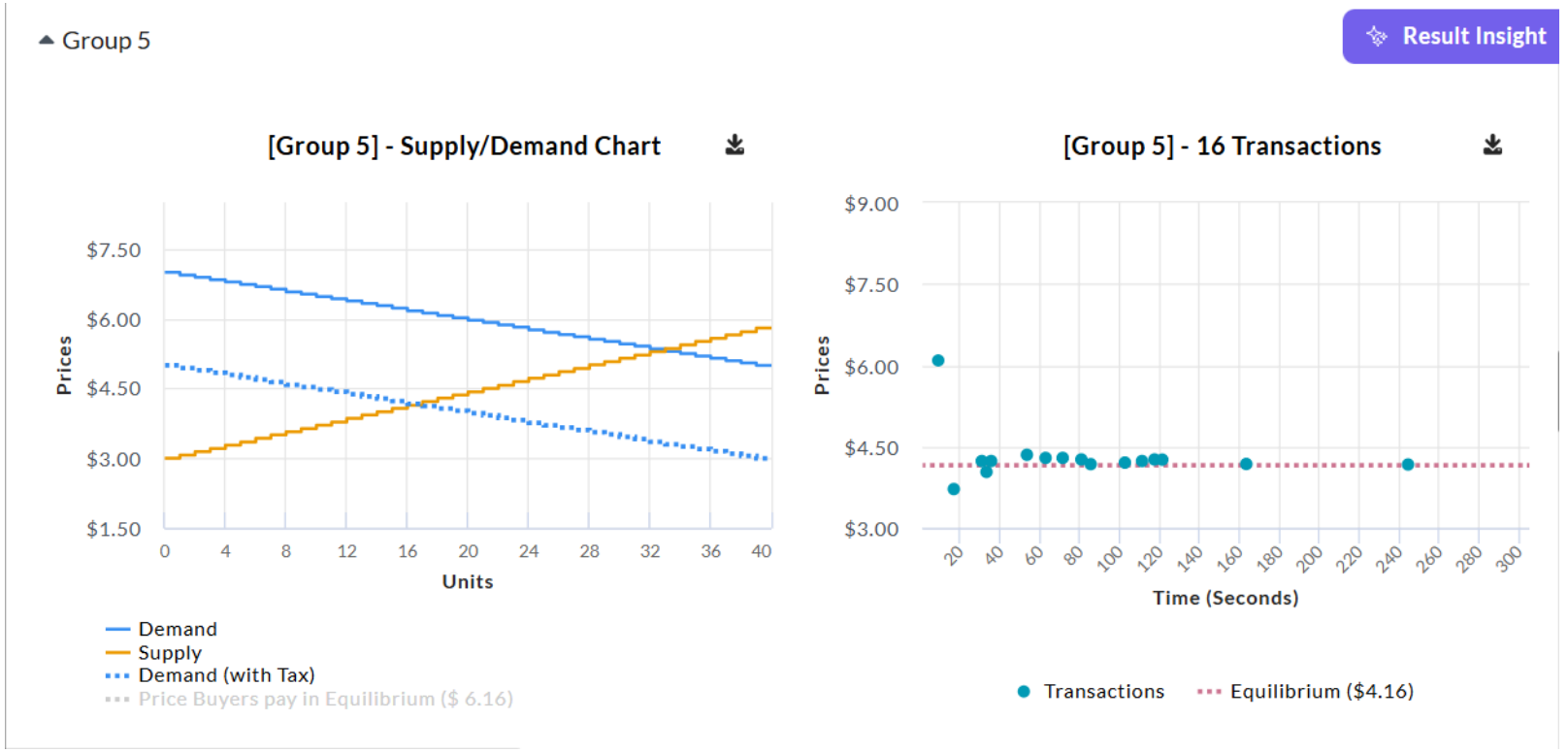
Period 1 – 2: No tax (Eq. Price: $5.33)

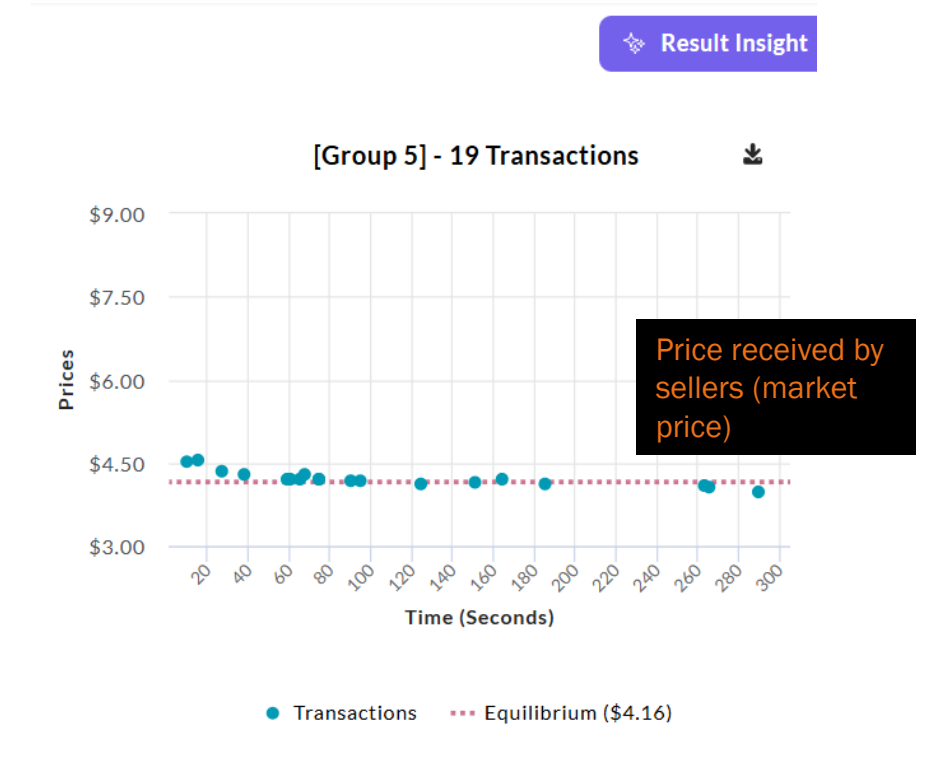




Wed am – Group 5

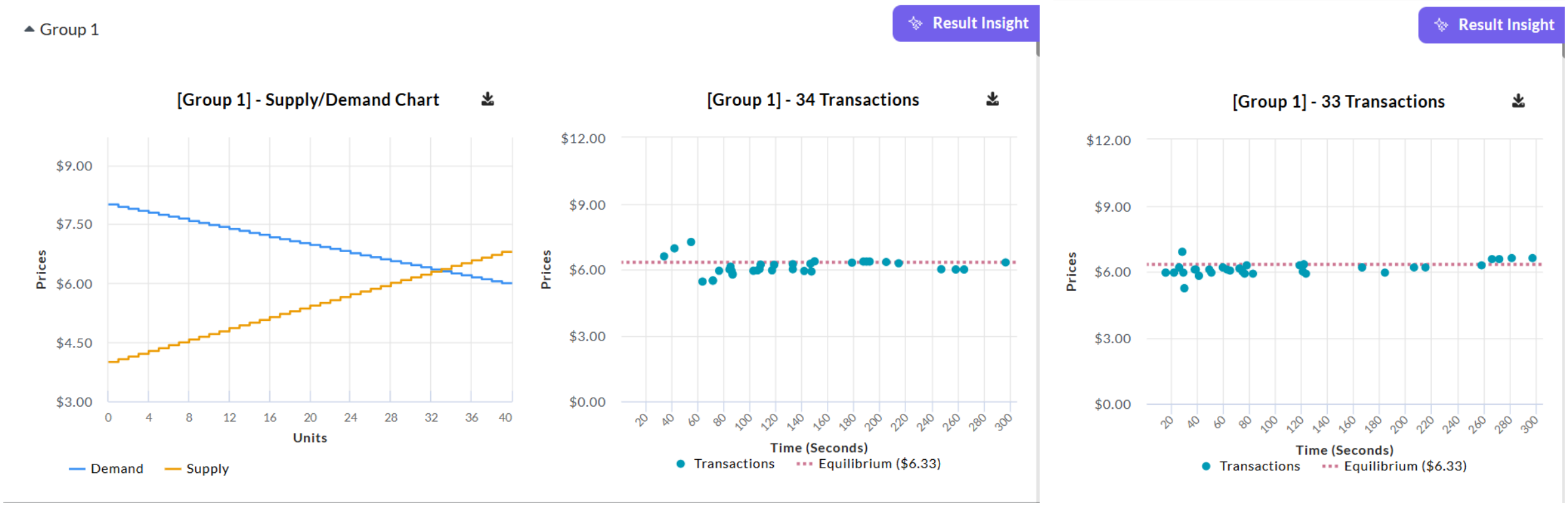
Period 3 – 4: tax on sellers (Eq. Price = $6.16; Price Sellers Receive in Eq. = $4.16)





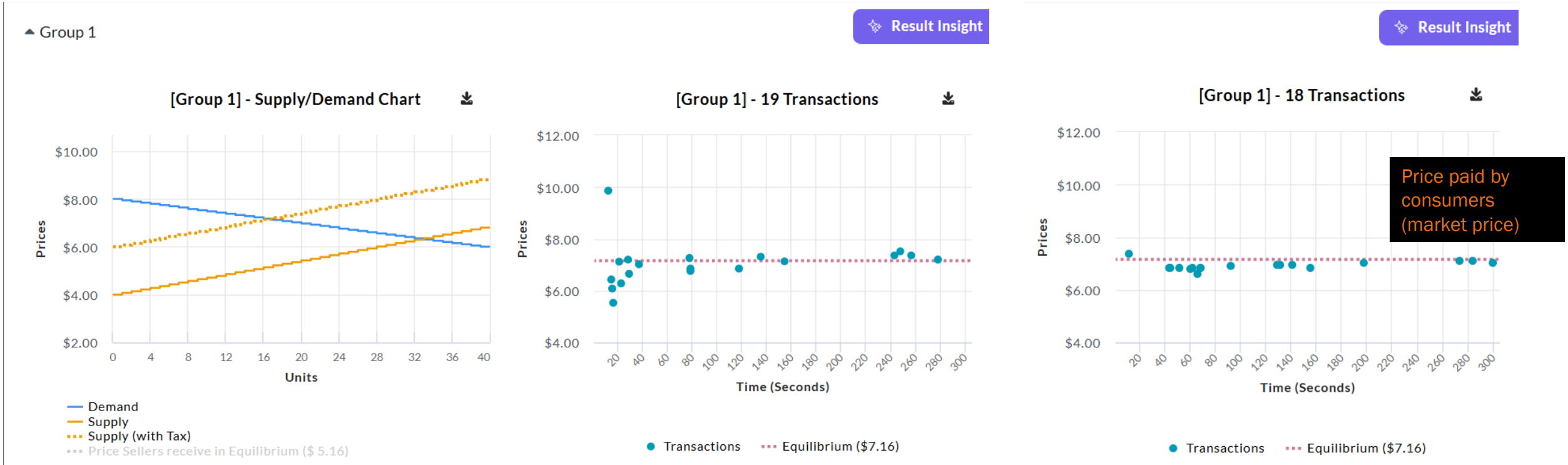
Wed am – Group 5

Period 5 – 6: tax on buyers (Eq. Price = $4.16; Price Buyers Pay in Eq. = $6.15)



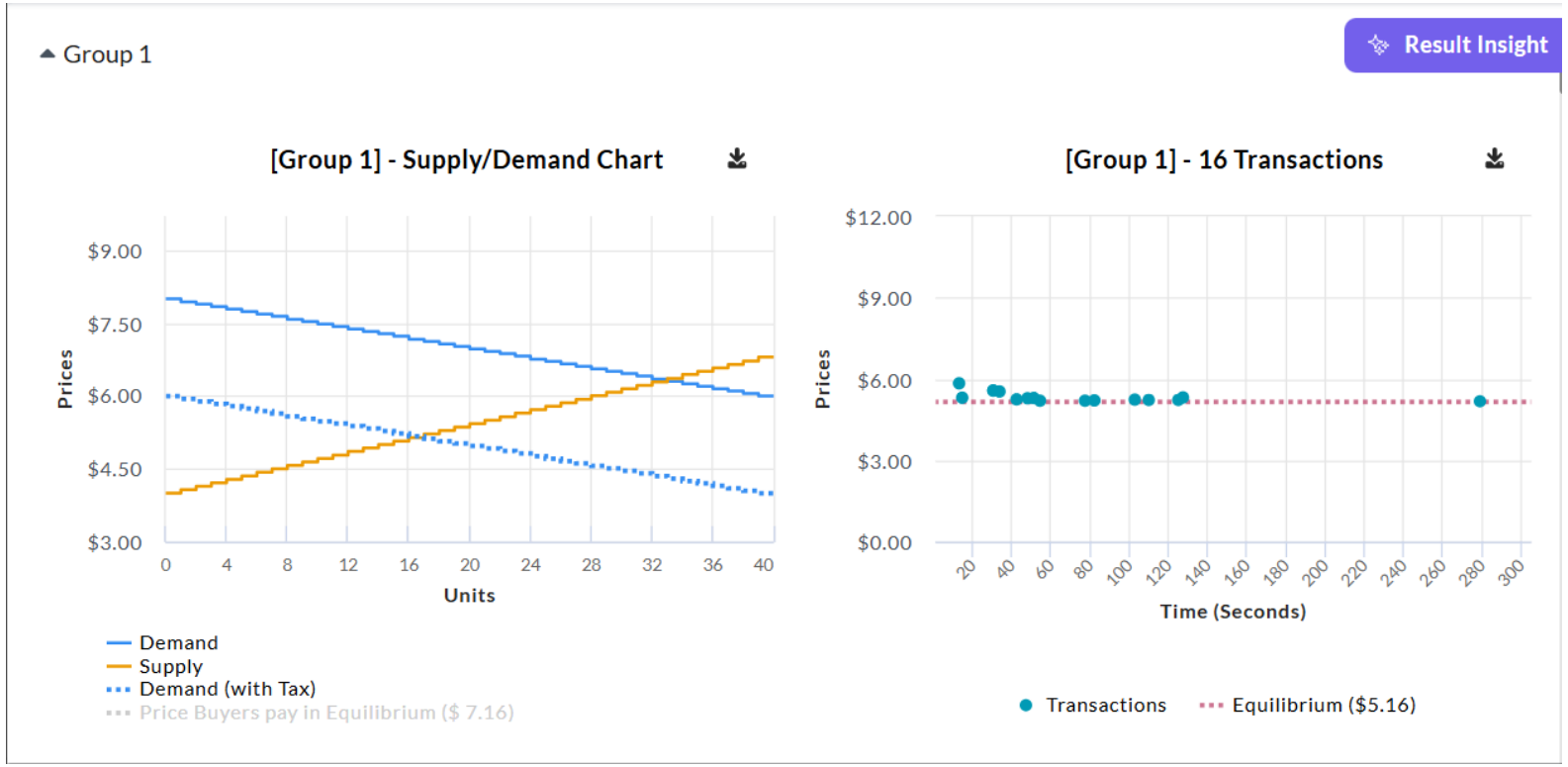
Wed pm – Group 1

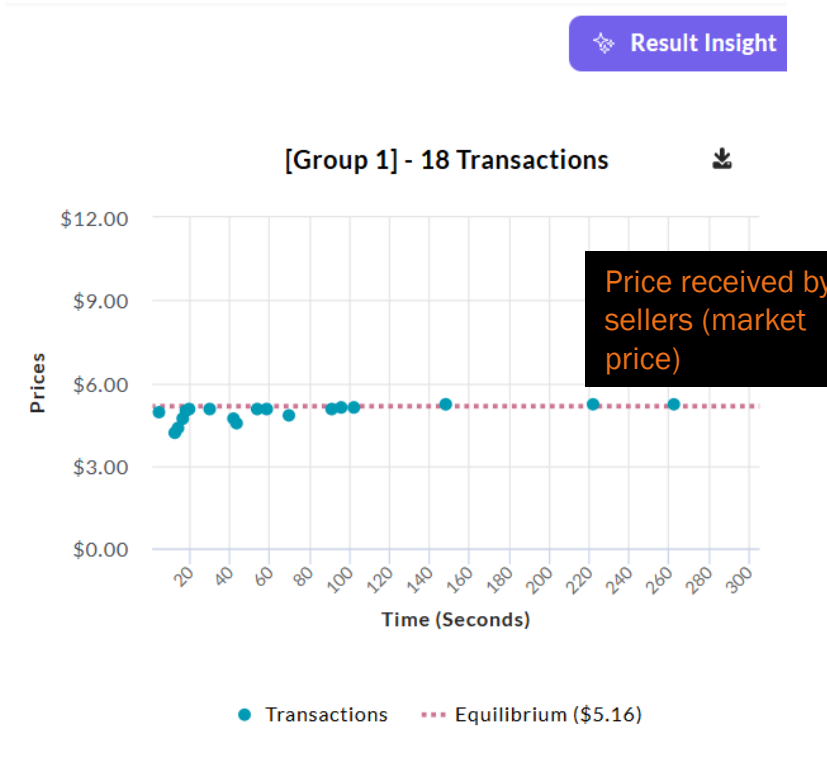
Period 1 – 2: No tax (Eq. Price: $6.33)



Wed pm – Group 1

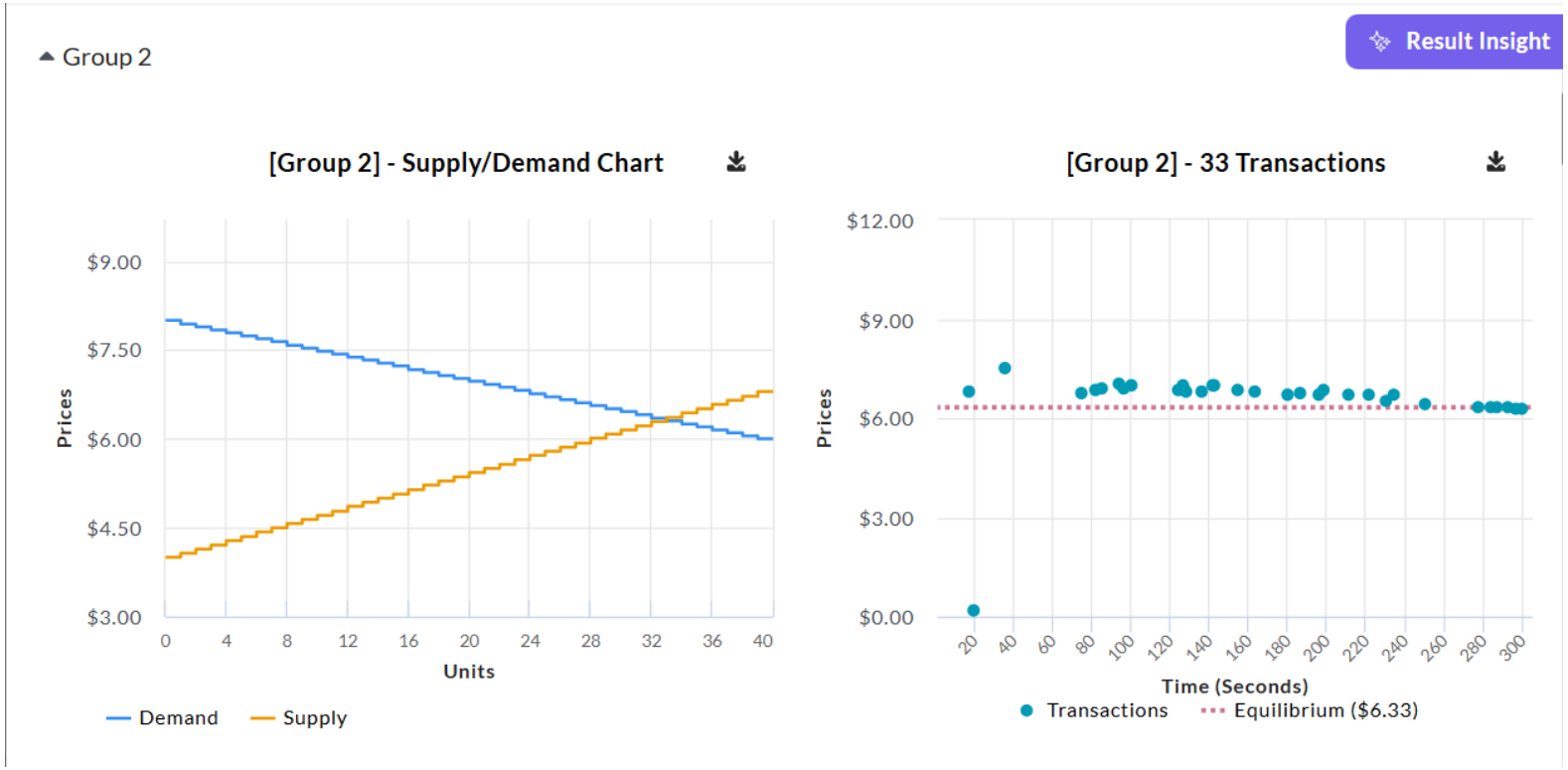
Period 3 – 4: tax on sellers (Eq. Price = $7.16; Price Sellers Receive in Eq. = $5.16)

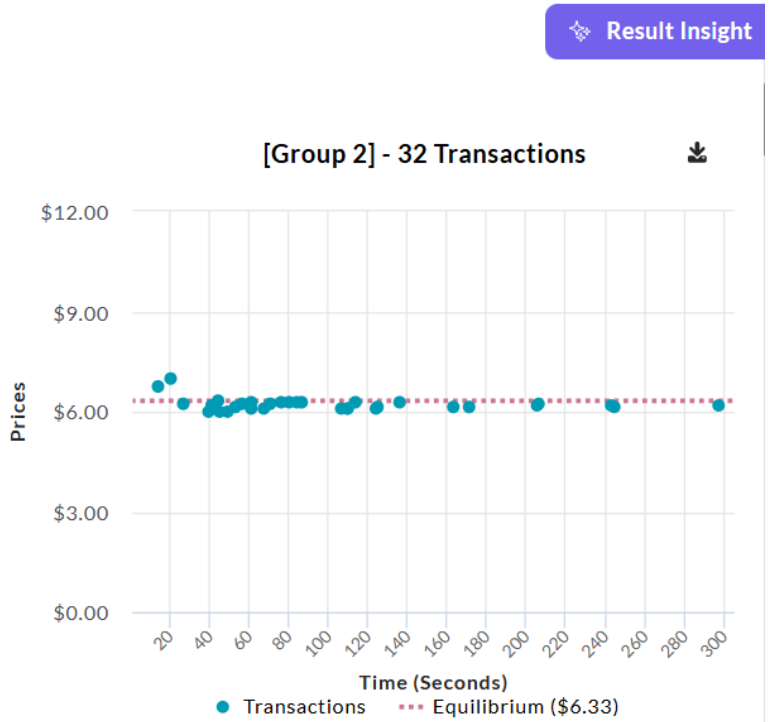




Wed pm – Group 1

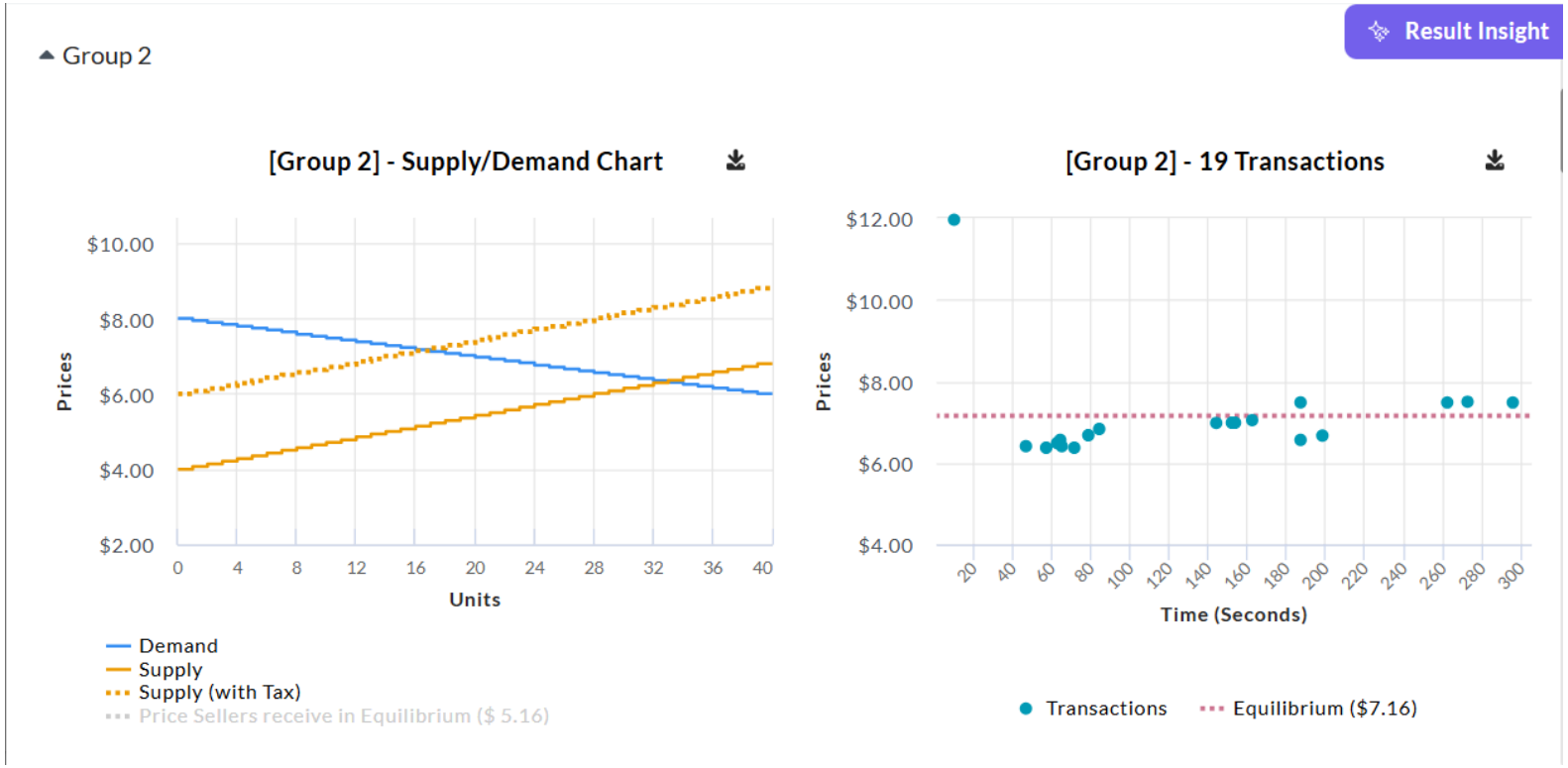
Period 5 – 6: tax on buyers (Eq. Price = $5.16; Price Buyers Pay in Eq. = $7.16)

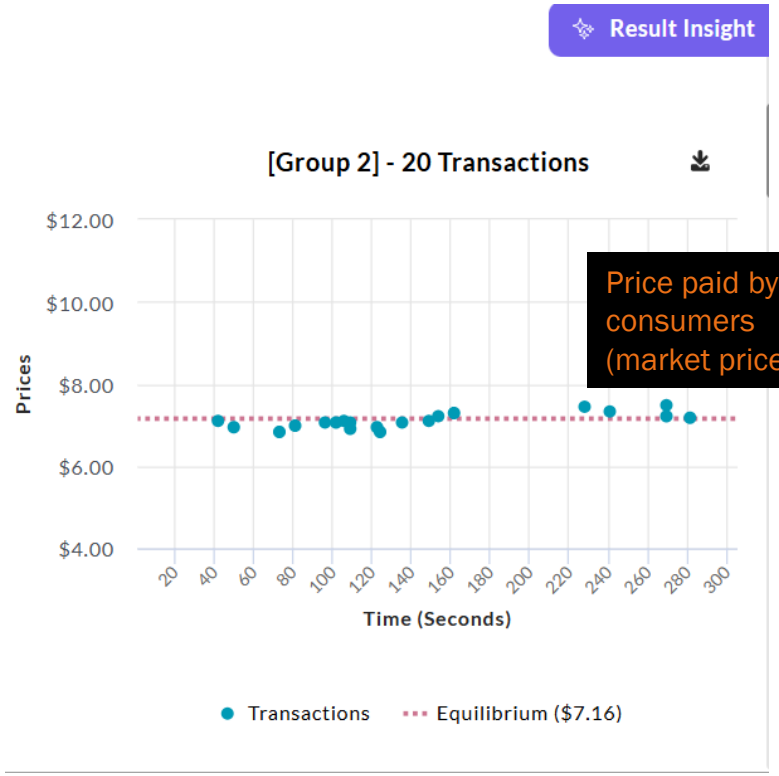




Wed pm – Group 2

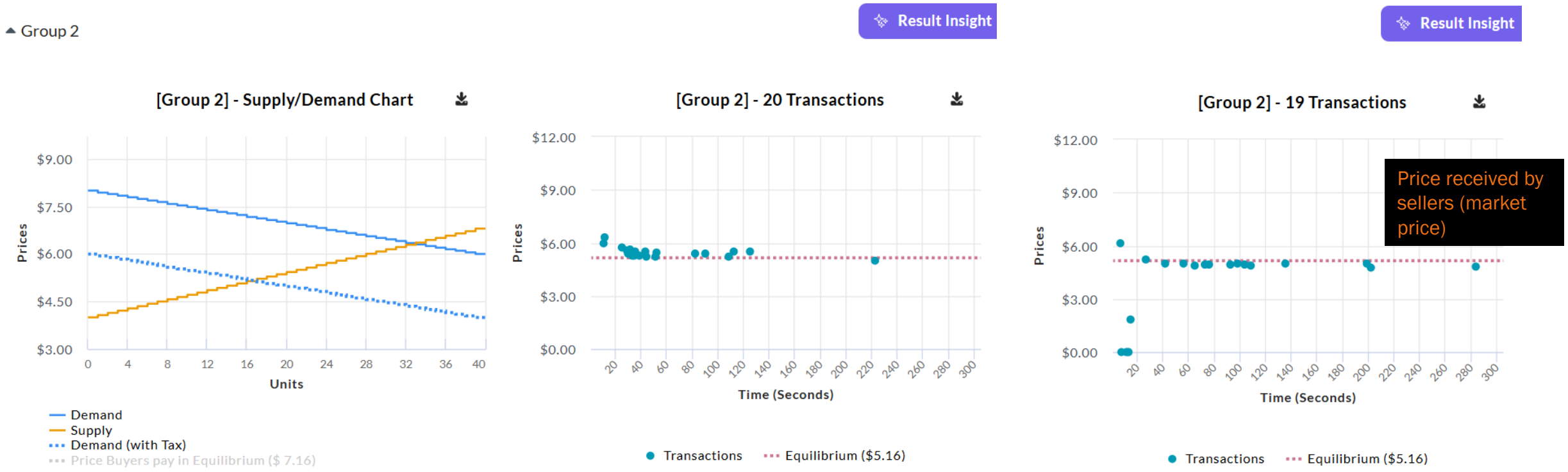
Period 1 – 2: No tax (Eq. Price: $6.33)





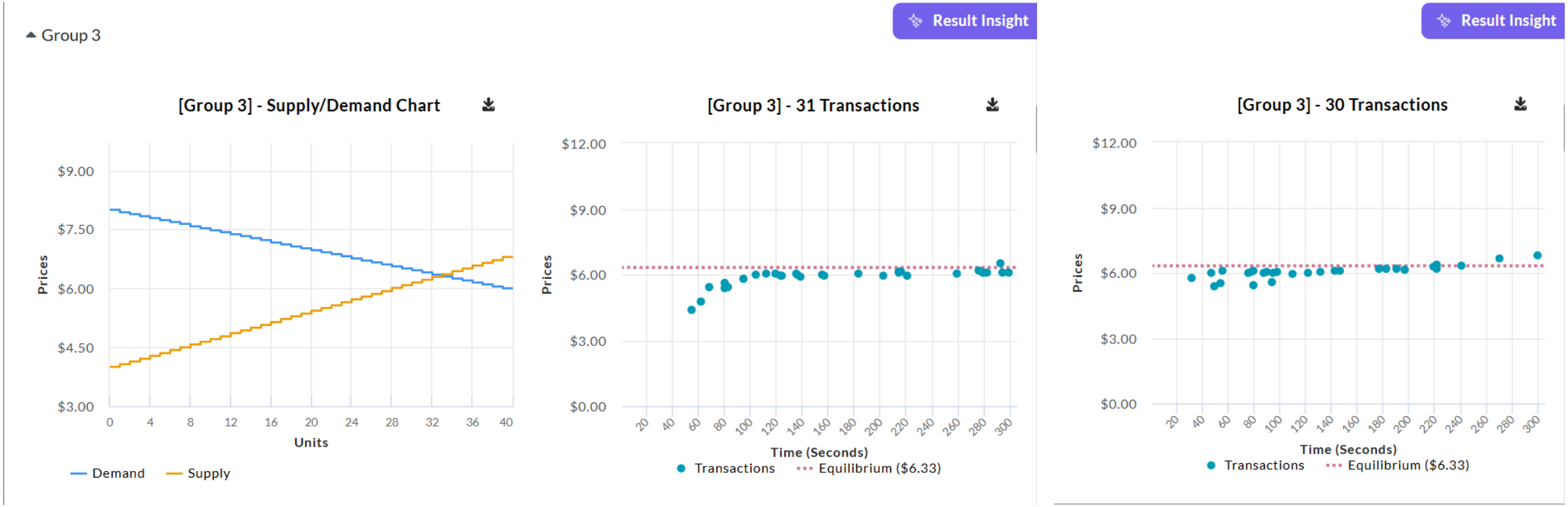
Wed pm – Group 2

Period 3 – 4: tax on sellers (Eq. Price = $7.16; Price Sellers Receive in Eq. = $5.16)



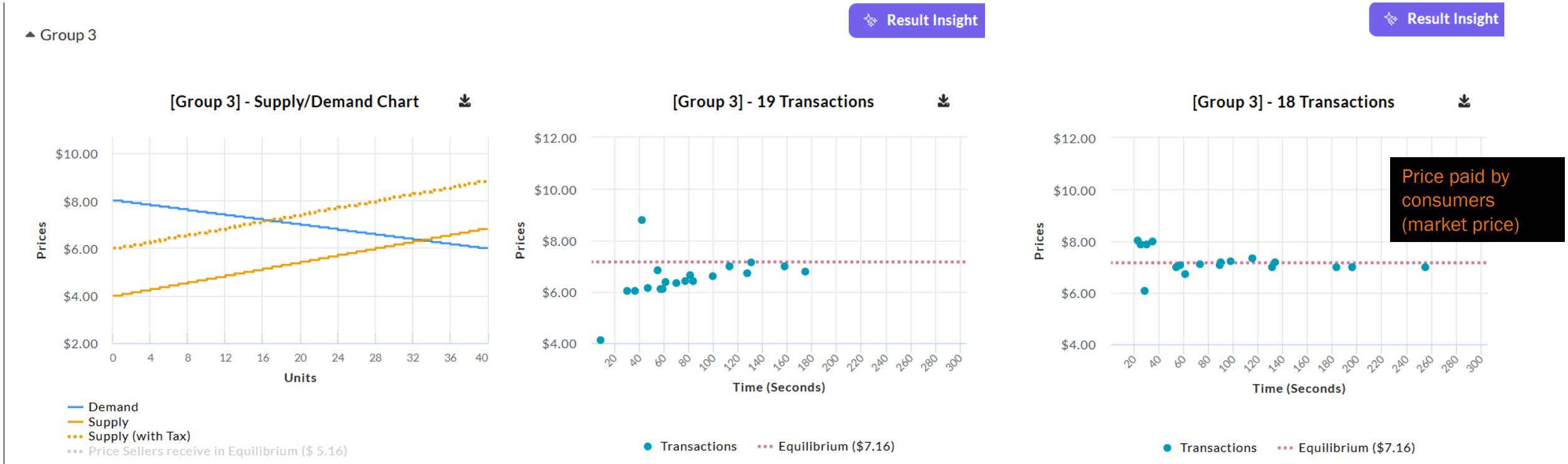
Wed pm – Group 2

Period 5 – 6: tax on buyers (Eq. Price = $5.16; Price Buyers Pay in Eq. = $7.16)



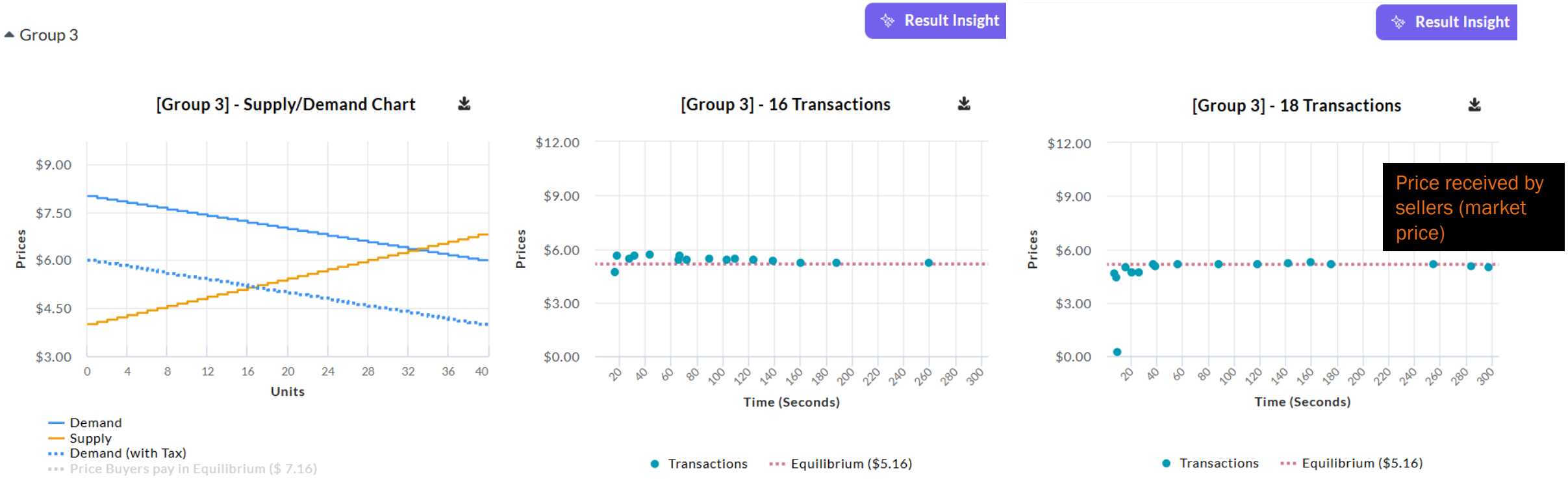
Wed pm – Group 3

Period 1 – 2: No tax (Eq. Price: $6.33)



Wed pm – Group 3

Period 3 – 4: tax on sellers (Eq. Price = $7.16; Price Sellers Receive in Eq. = $5.16)

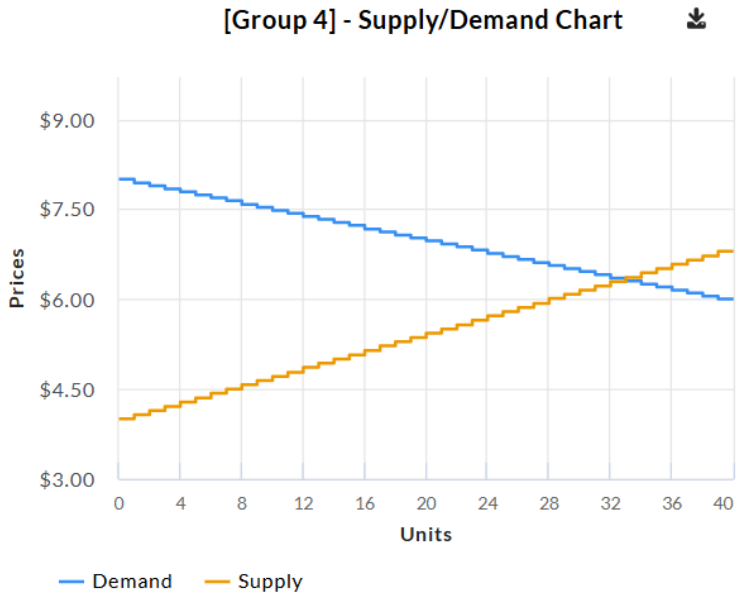


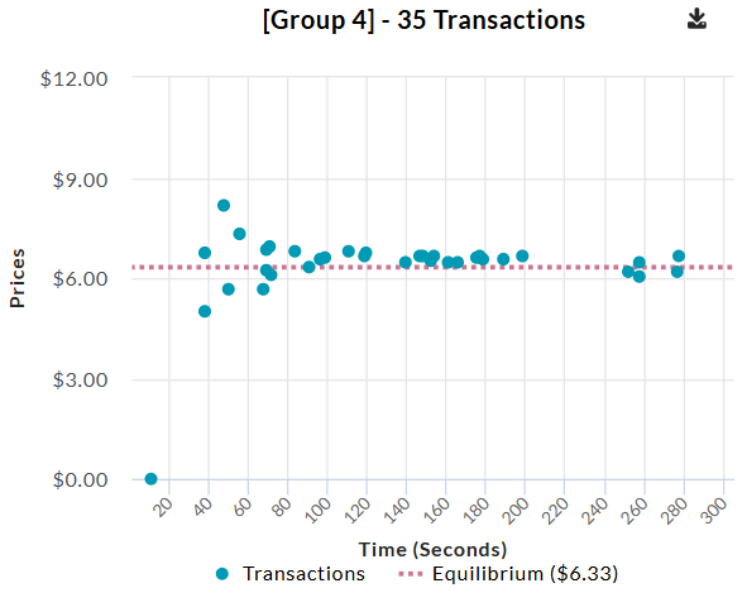
Wed pm – Group 3

Period 5 – 6: tax on buyers (Eq. Price = $5.16; Price Buyers Pay in Eq. = $7.16)

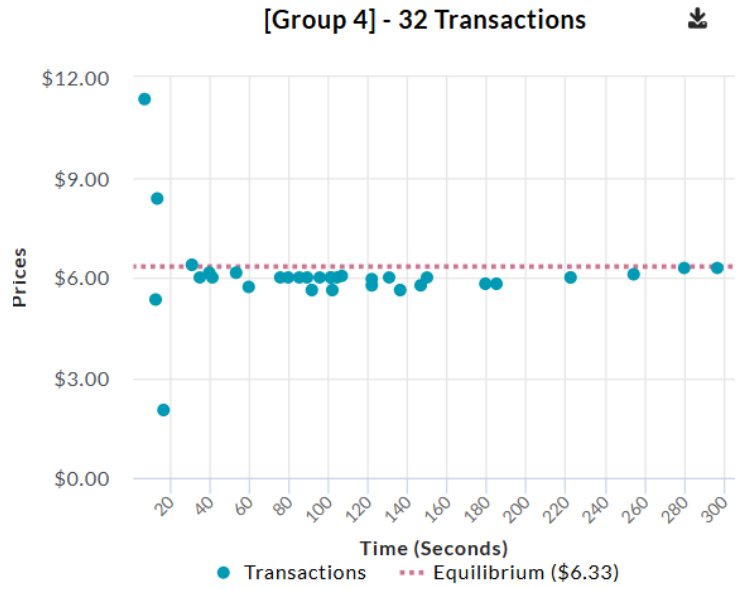
Group 4

Result Insight



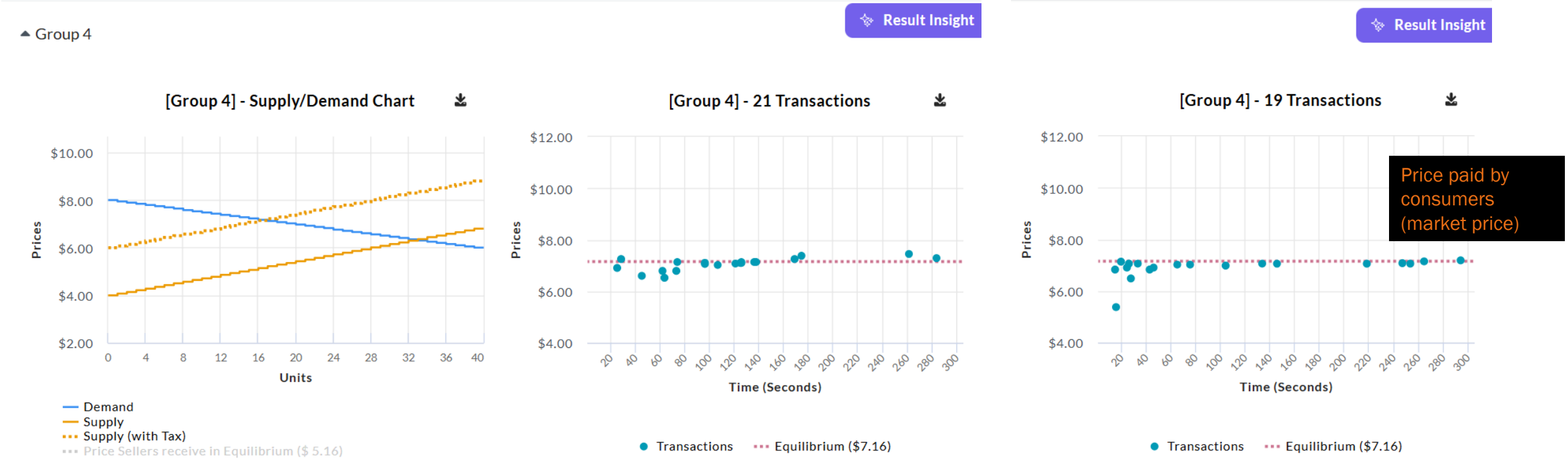


Result Insight



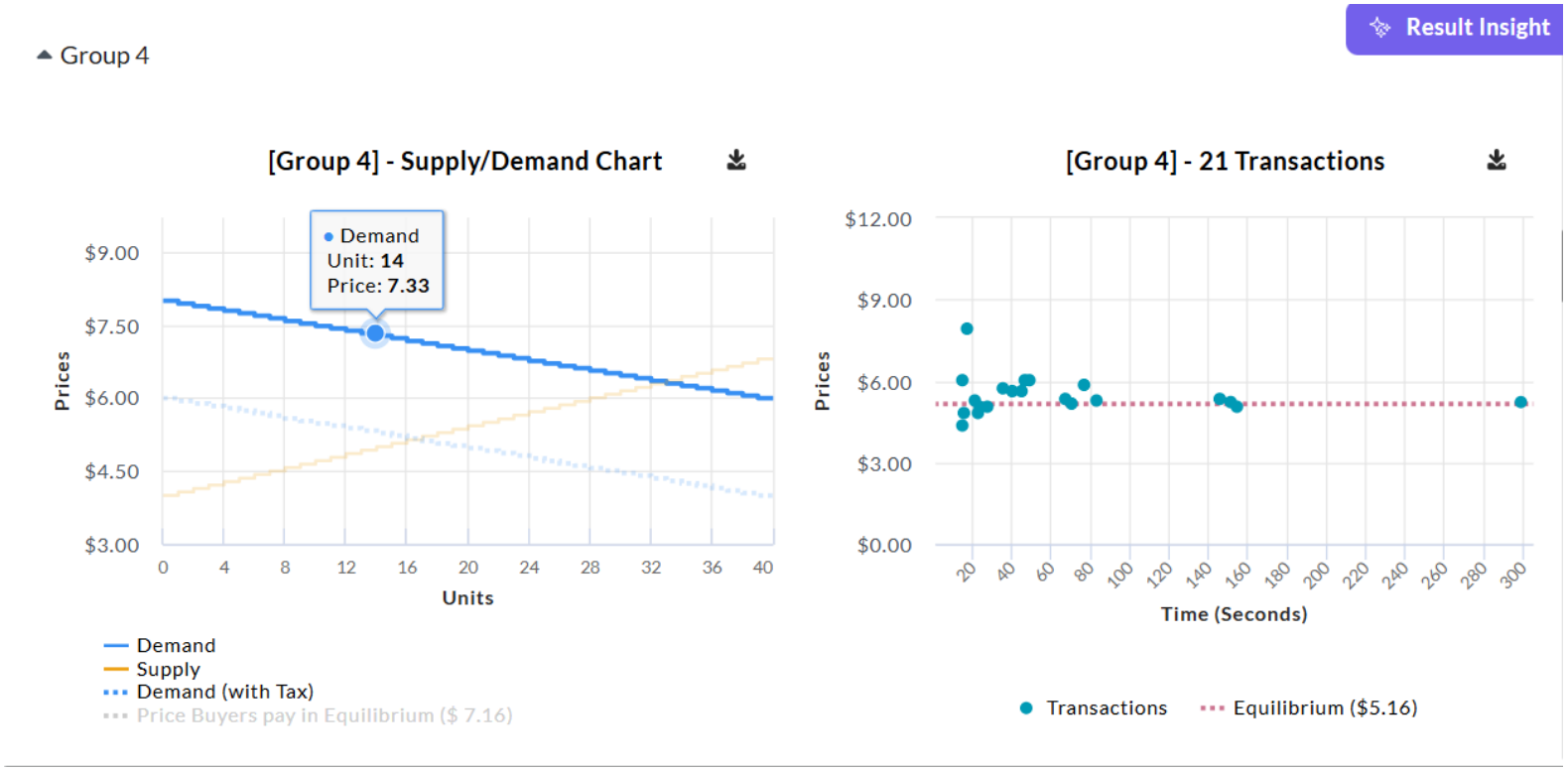
Wed pm – Group 4

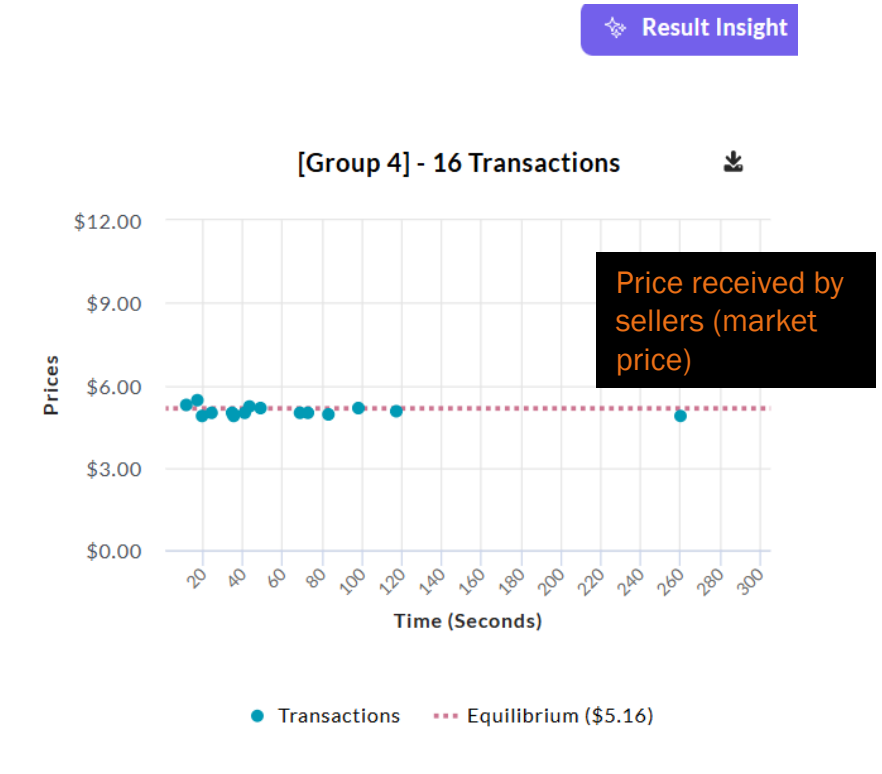
Period 1 – 2: No tax (Eq. Price: $6.33)



Wed pm – Group 4

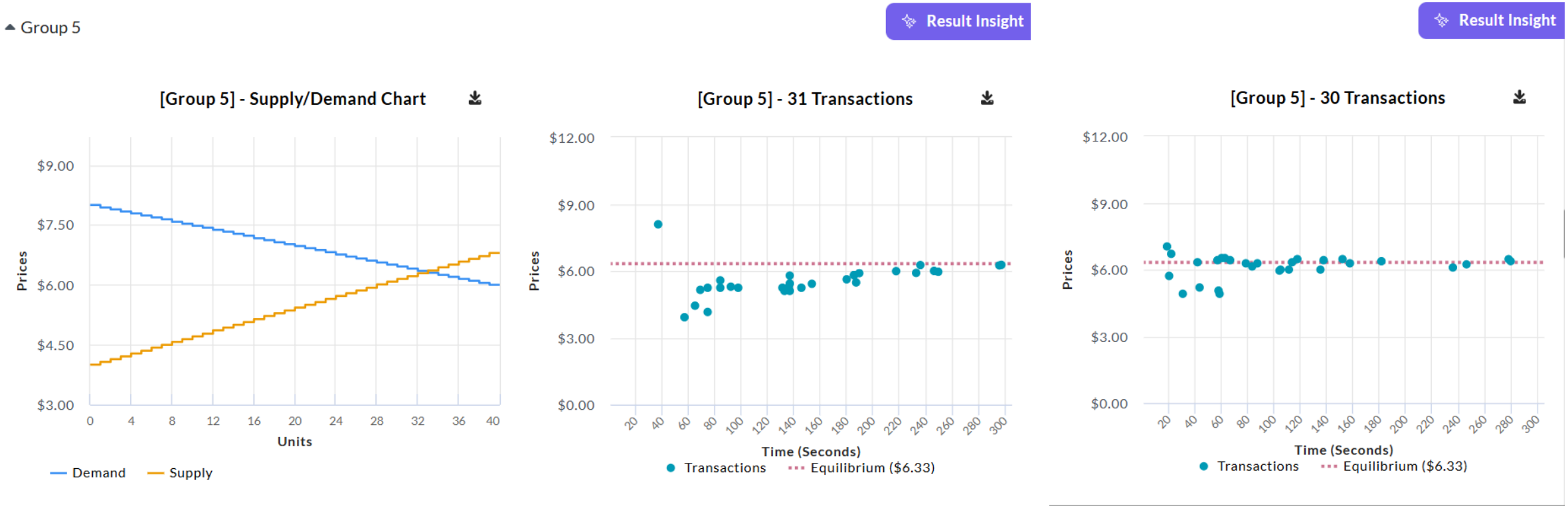
Period 3 – 4: tax on sellers (Eq. Price = $7.16; Price Sellers Receive in Eq. = $5.16)





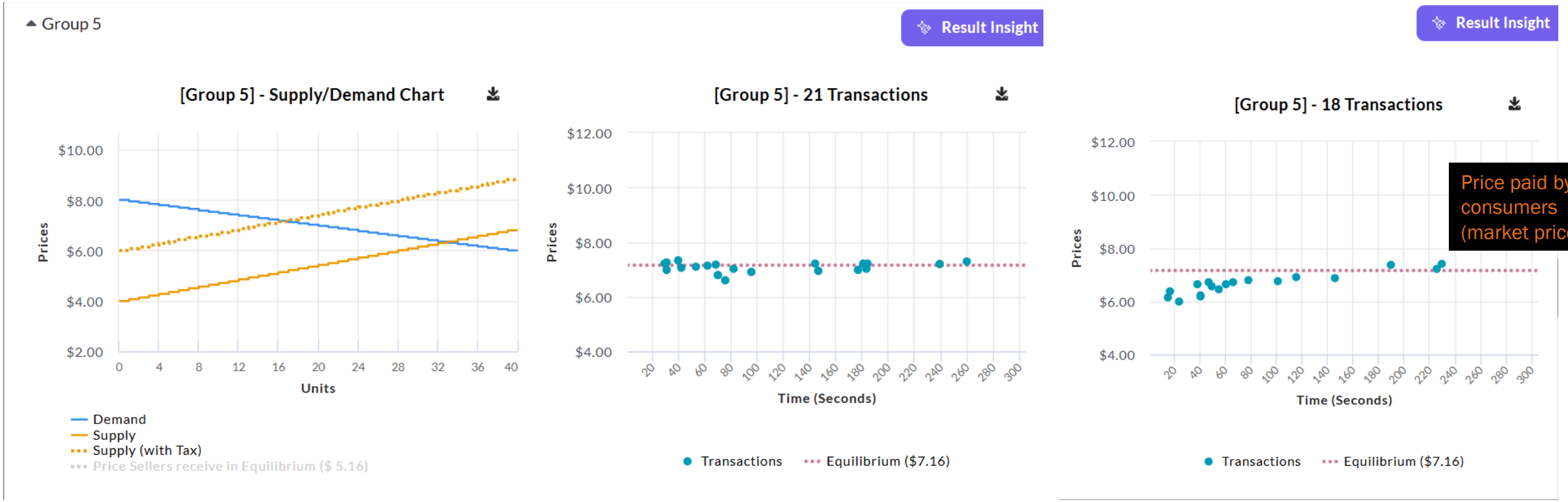
Wed pm – Group 4

Period 5 – 6: tax on buyers (Eq. Price = $5.16; Price Buyers Pay in Eq. = $7.16)



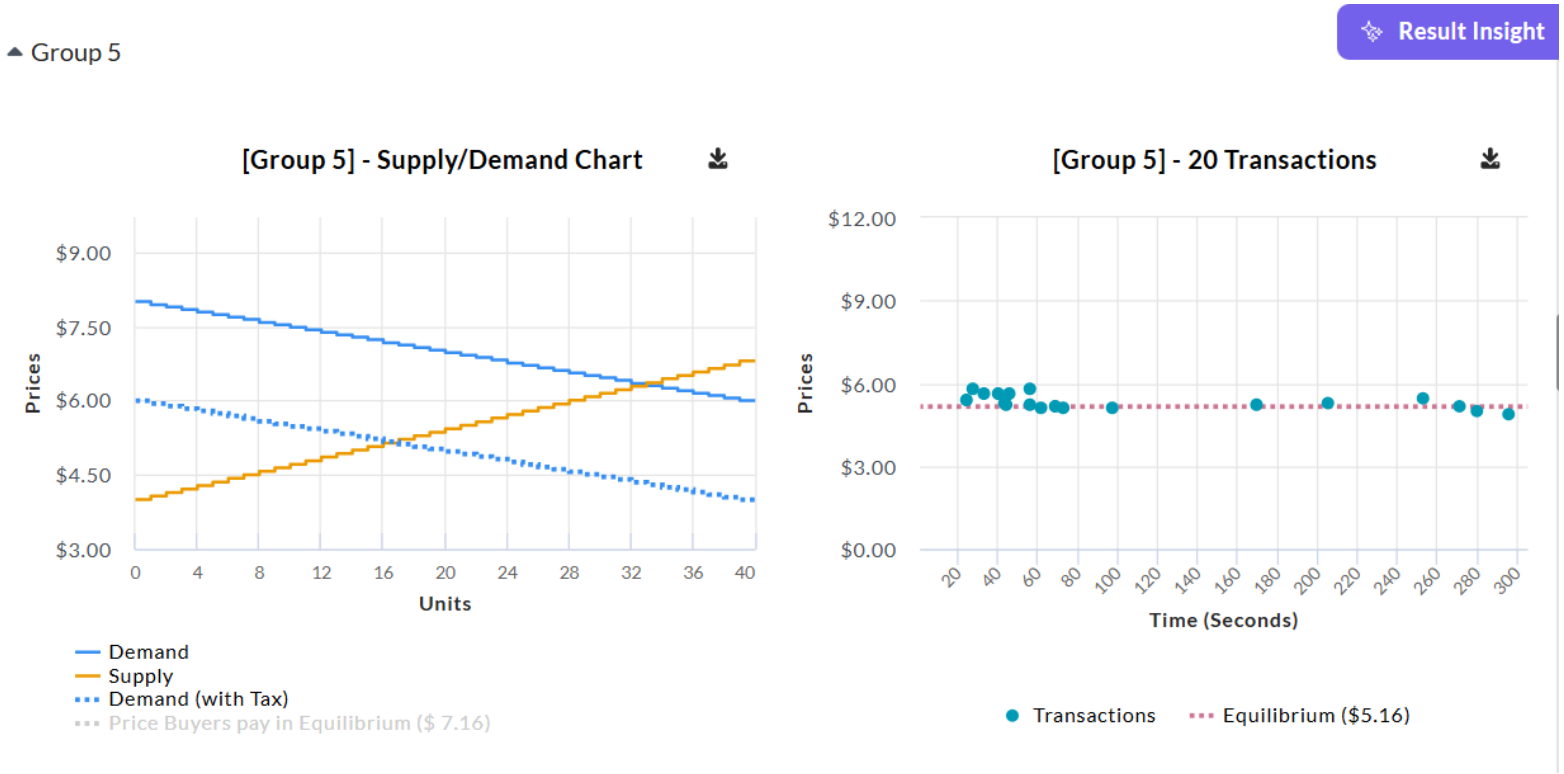
Wed pm – Group 5

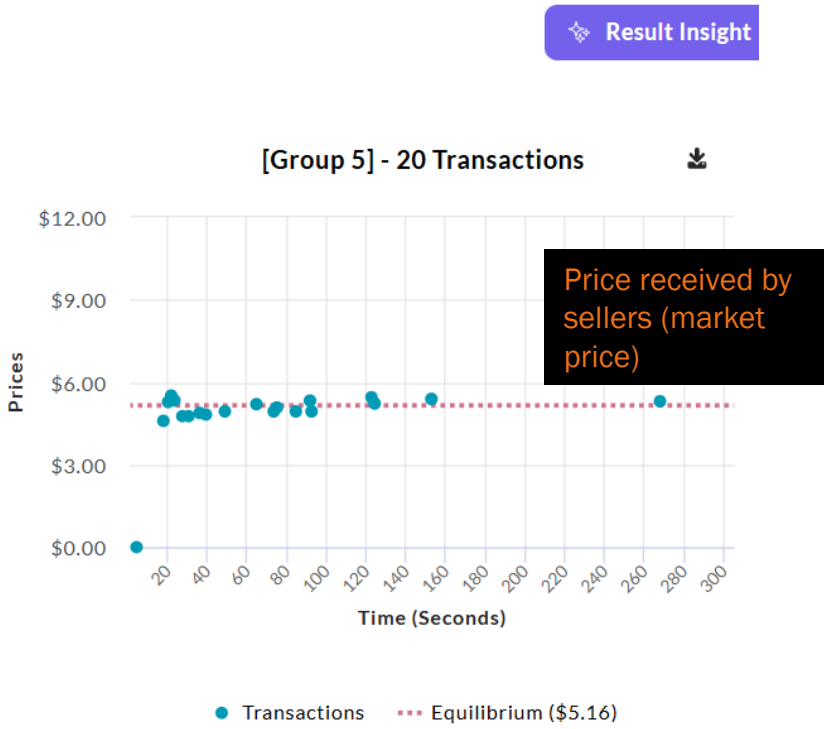
Period 1 – 2: No tax (Eq. Price: $6.33)



Wed pm – Group 5

Period 3 – 4: tax on sellers (Eq. Price = $7.16; Price Sellers Receive in Eq. = $5.16)





Wed pm – Group 5

Period 5 – 6: tax on buyers (Eq. Price = $5.16; Price Buyers Pay in Eq. = $7.16)