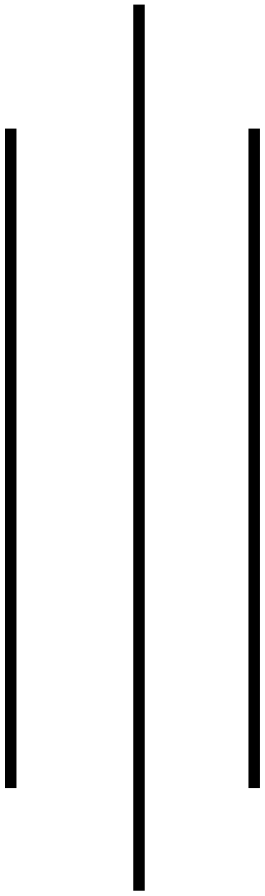
Deerwalk Institute Of Technology

Sifal, Kathmandu



Simulation and Modeling
Practical

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Background Theory

Supply Demand behavior of market

Here demand of market decrease as price is increased and supply of the market increases as price increases. At equilibrium condition, supply and demand is same where price is reduced.
We have,

Demand(Q) = a – b * p where a and b are constants

Supply(S) = c + d * p

At equilibrium

Q = S

-> a – b * p = c + d * p

p = (a - c) / (b + d) b and d cannot be negative since price is increasing in both cases and to obtain positive no 'a', a is also positive. pe gives the price of the system at equilibrium

Program Coding

```
#include<stdio.h>
FILE *fp;
int main(){
      float a=600, b=3000, c=-100, d=2000;
      float p,q,s;
      float pe;
      fp = fopen("supply.xls","w+");
      fprintf(fp,"Price\tDemand\tSupply\n");
      for(p=0;p<=2;p+=0.1){
            q=a-b*p;
            s=c+d*p;
            printf("\nThe value of p=%f q=%f s=%f",p,q,s);
            fprintf(fp,"%f\t%f\t%f\n",p,q,s);
      }
      pe=(a-c)/(b+d);
            printf("\nThe value of pe=%.2f",pe);
            fclose(fp);
            return 0;
}
```

Output

Price	Demand	Supply
0	600	-100
0.1	300	100
0.2	0	300
0.3	-300.000061	500
0.4	-600	700
0.5	-900	900
0.6	-1200.000122	1100
0.7	-1500.000244	1300.000122
0.8	-1800.000244	1500.000122
0.9	-2100.000244	1700.000244
1	-2400.000244	1900.000244
1.1	-2700.000488	2100.000244
1.2	-3000.000488	2300.000244
1.3	-3300.000488	2500.000488
1.4	-3600.000488	2700.000488
1.5	-3900.000488	2900.000488
1.6	-4200.000977	3100.000488
1.7	-4500.000977	3300.000488
1.8	-4800.000977	3500.000732
1.9	-5100.000977	3700.000732

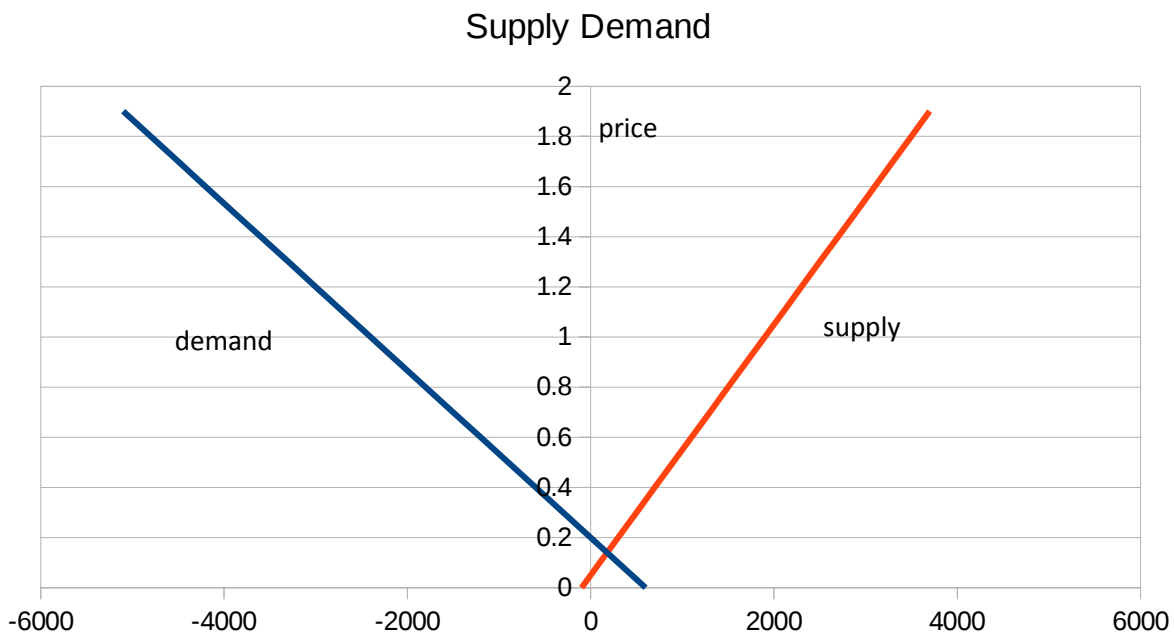

Illustration 1: Supply demand behaviour of market

Conclusion

Hence, Supply Demand behavior of market was simulated.