# Supplementary Data

Quadratic evolutionary game and simulation analysis code

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| 1. Solving replicated dynamic equations and eigenvalues of the Jacobi matrix |
| syms e f g h Re Rf Rh Rg Ce Cf Ff Fg Fh Ig1 Ig2 Cg1 Cg2 Ch Dh Sh De Dg Sg;%Government expectations and replication of dynamic equationsV11=(Re-Ce)\*f\*g\*h+(Re-Ce)\*(1-f)\*g\*h+(Re-Ce)\*f\*g\*(1-h)+(Re-Ce)\*(1-f)\*g\*(1-h)+(Fg-Ce-De)\*f\*(1-g)\*h+(Ff+Fg-Ce-De)\*(1-f)\*(1-g)\*h+(Fg+Fh-Ce-De)\*f\*(1-g)\*(1-h)+(Ff+Fg+Fh-Ce-De)\*(1-f)\*(1-g)\*(1-h);V12=Re\*f\*g\*h+Re\*(1-f)\*g\*h+Re\*f\*g\*(1-h)+Re\*(1-f)\*g\*(1-h)-De\*f\*(1-g)\*h-De\*(1-f)\*(1-g)\*h-De\*f\*(1-g)\*(1-h)-De\*(1-f)\*(1-g)\*(1-h);V1=simplify(e\*V11+(1-e)\*V12);fe=simplify(e\*(V11-V1));%Holder's expectation and replication dynamic equationsV21=(Rf-Cf)\*e\*g\*h+(Rf-Cf)\*e\*g\*(1-h)+(Rf+Ig1-Cf)\*e\*(1-g)\*h+(Rf+Ig1-Cf)\*e\*(1-g)\*(1-h)+(Rf-Cf)\*(1-e)\*g\*h+(Rf-Cf)\*(1-e)\*g\*(1-h)+(Rf+Ig1-Cf)\*(1-e)\*(1-g)\*h+(Rf+Ig1-Cf)\*(1-e)\*(1-g)\*(1-h);V22=Rf\*e\*g\*h+Rf\*e\*g\*(1-h)+(Rf-Ff)\*e\*(1-g)\*h+(Rf-Ff)\*e\*(1-g)\*(1-h)+Rf\*(1-e)\*g\*h+Rf\*(1-e)\*g\*(1-h)+Rf\*(1-e)\*(1-g)\*h+Rf\*(1-e)\*(1-g)\*(1-h);V2=simplify(f\*V21+(1-f)\*V22);ff=simplify(f\*(V21-V2));%Expectation and replication dynamics equations for entrusted sellersV31=(Rg+Sg-Cg1)\*e\*f\*h+(Rg+Sg-Cg1)\*e\*(1-f)\*h+(Rg+Sg-Cg1)\*(1-e)\*f\*h+(Rg+Sg-Cg1)\*(1-e)\*(1-f)\*h+(Rg+Sg-Cg1)\*e\*f\*(1-h)+(Rg+Sg-Cg1)\*e\*(1-f)\*(1-h)+(Rg+Sg-Cg1)\*(1-e)\*f\*(1-h)+(Rg+Sg-Cg1)\*(1-e)\*(1-f)\*(1-h);V32=(Rg-Cg2-Ig1-Ig2-Fg-Dg)\*e\*f\*h+(Rg-Cg2-Ig2-Fg-Dg)\*e\*(1-f)\*h+(Rg-Cg2-Ig1-Ig2-Dg)\*(1-e)\*f\*h+(Rg-Cg2-Ig2-Dg)\*(1-e)\*(1-f)\*h+(Rg-Cg2-Ig1-Fg-Dg)\*e\*f\*(1-h)+(Rg-Cg2-Fg-Dg)\*e\*(1-f)\*(1-h)+(Rg-Cg2-Ig1-Dg)\*(1-e)\*f\*(1-h)+(Rg-Cg2-Dg)\*(1-e)\*(1-f)\*(1-h);V3=simplify(g\*V31+(1-g)\*V32);fg=simplify(g\*(V31-V3));%Expectations of third-party platforms and replication of dynamic equationsV41=(Rh+Sh-Ch)\*e\*f\*g+(Rh+Sh-Ch)\*e\*(1-f)\*g+(Rh+Sh-Ch)\*(1-e)\*f\*g+(Rh+Sh-Ch)\*(1-e)\*(1-f)\*g+(Rh+Sh+Ig2-Ch-Dh)\*e\*f\*(1-g)+(Rh+Sh+Ig2-Ch-Dh)\*e\*(1-f)\*(1-g)+(Rh+Sh+Ig2-Ch-Dh)\*(1-e)\*f\*(1-g)+(Rh+Sh+Ig2-Ch-Dh)\*(1-e)\*(1-f)\*(1-g);V42=Rh\*e\*f\*g+Rh\*e\*(1-f)\*g+Rh\*(1-e)\*f\*g+Rh\*(1-e)\*(1-f)\*g+(Rh-Fh-Dh)\*e\*(1-f)\*(1-g)+(Rh-Dh)\*(1-e)\*(1-f)\*(1-g)+(Rh-Fh-Dh)\*e\*f\*(1-g)+(Rh-Dh)\*(1-e)\*f\*(1-g);V4=simplify(h\*V41+(1-h)\*V42);fh=simplify(h\*(V41-V4));%Find the equilibrium point and its eigenvaluesdisp(['Jacobi matrix']);A=[diff(fe,e) diff(fe,f) diff(fe,g) diff(fe,h); diff(ff,e) diff(ff,f) diff(ff,g) diff(ff,h); diff(fg,e) diff(fg,f) diff(fg,g) diff(fg,h); diff(fh,e) diff(fh,f) diff(fh,g) diff(fh,h)]equ=[fe==0,ff==0,fg==0,fh==0];answ=solve(equ,[e,f,g,h]);disp(['Equilibrium point：']);A1=[answ.e,answ.f,answ.g,answ.h]disp(['Number of equalization points：']);length(answ.e)xz=[];for j=9:24 disp(['The' num2str(j) ' equilibrium point：']); A1(j,:) disp(['The' num2str(j) ' Matrix after equilibrium points are brought into the Jacobi matrix：']); e1=A1(j,1);f1=A1(j,2);g1=A1(j,3);h1=A1(j,4); B=subs(A,[e f g h],[e1 f1 g1 h1]) disp(['The' num2str(j) ' Eigenvalues of the equilibrium points brought to the Jacobi matrix：']); [V,R] = eig(B); B1=R(1,1) B2=R(2,2) B3=R(3,3) B4=R(4,4) xz=[xz;B1,B2,B3,B4];enddisp([' The set of eigenvalues in the first column：']);xz(:,1)disp([' The set of eigenvalues in the second column：']);xz(:,2)disp([' The set of eigenvalues in the third column：']);xz(:,3)disp([' The set of eigenvalues in the fourth column：']);xz(:,4) |

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| **2.** Evolutionary process diagram |
| **Script 1 (Quadratic game function definition)** |
| function dydt=FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg)dydt=zeros(4,1);dydt(1)=y(1)\*(1-y(1))\*(-Ce+(1-y(3))\*(Fg+(1-y(4))\*Fh+(1-y(2))\*Ff));dydt(2)=y(2)\*(1-y(2))\*((1-y(3))\*(Ig1+y(1)\*Ff)-Cf);dydt(3)=y(3)\*(1-y(3))\*(-Cg1+Cg2+Sg+Dg+y(2)\*Ig1+y(4)\*Ig2+y(1)\*Fg);dydt(4)=y(4)\*(1-y(4))\*(Sh-Ch+(1-y(3))\*Ig2+y(1)\*Fh);end |
| **Script 2 (Agent seller's reputation premium or loss)** |
| %Sg/Dg large picturefigure(1)% subplot 1clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=10,Ig1=10,Sh=12,Sg=3,Dg=6;set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.4,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$S\_{g}=3$,$D\_{g}=6$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})');%subplot 2clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=10,Ig1=10,Sh=12,Sg=6,Dg=12;figure(2)set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.5,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$S\_{g}=6$,$D\_{g}=12$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})');%subplot 3clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=10,Ig1=10,Sh=12,Sg=12,Dg=24;figure(3)set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.5,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$S\_{g}=12$,$D\_{g}=24$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})'); |
| **Script 3 (** **Effect of the Amount of Default)** |
| %Sg/Dg large picturefigure(1)% subplot 1clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=10,Ig1=10,Sh=12,Sg=6,Dg=12;set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.4,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$I\_{g1}=10$,$I\_{g2}=10$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})');%subplot 2clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=20,Ig1=20,Sh=12,Sg=6,Dg=12;figure(2)set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.5,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$I\_{g1}=20$,$I\_{g2}=20$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})');%subplot 3clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=30,Ig1=30,Sh=12,Sg=6,Dg=12;figure(3)set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.5,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$I\_{g1}=30$,$I\_{g2}=30$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})'); |
| **Script 4 (The Impact of the Reputation Premium of Third-party Platforms)** |
| %Sg/Dg large picturefigure(1)% subplot 1clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=10,Ig1=10,Sh=4,Sg=12,Dg=24;set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.4,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$S\_{h}=4$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})');%subplot 2clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=10,Ig1=10,Sh=6,Sg=12,Dg=24;figure(2)set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.5,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$S\_{h}=6$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})');%subplot 3clc;clear;Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=10,Ff=20,Fg=40,Fh=20,Ig2=10,Ig1=10,Sh=12,Sg=12,Dg=24;figure(3)set(0,'defaultfigurecolor','w')[t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0,50],[0.5,0.3,0.2,0.3]);points=1:1:length(t);plot(t,y(:,1),'r^-','linewidth',1,'markersize',3,'markerfacecolor','r','markerindices',points);hold onplot(t,y(:,2),'b-','linewidth',1);hold onplot(t,y(:,3),'y-.','linewidth',1);hold onplot(t,y(:,4),'g--','linewidth',1);hold onset(gca,'XTick',[0:10:50],'YTick',[0.0:0.2:1.0])set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f'));axis([0 50 -0.05 1.05])xlabel('$t$','interpreter','latex');ylabel('Probability');zhuti=title('$S\_{h}=12$');set(zhuti,'interpreter','latex')legend('The goverment({\it\fontname{Bodoni MT}e})','Holder({\it\fontname{Bodoni MT}f})','Agent seller({\it\fontname{Bodoni MT}g})','Third-party platform({\it\fontname{Bodoni MT}h})'); |
| **Script 5 (code for the impact of government regulatory mechanisms)** |
| %Array1clc;clear; Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=20,Ff=0,Fg=10,Fh=0,Ig2=10,Ig1=10,Sh=6,Sg=6,Dg=12;figure(1)for i=0.1:0.2:1 for j=0.1:0.2:1 for k=0.1:0.2:1 for l=0.1:0.2:1 [t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0 50],[i j k l]); grid on plot3(y(:,1),y(:,2),y(:,3),'linewidth',1); set(gca,'XTick',[0:0.2:1],'YTick',[0:0.2:1],'ZTick',[0:0.2:1]) set(gca,'XTickLabel',num2str(get(gca,'XTick')','%.1f')); set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f')); set(gca,'ZTickLabel',num2str(get(gca,'ZTick')','%.1f')); hold on axis([0 1 0 1 0 1]) end end endendxlabel('$e$','interpreter','latex');ylabel('$f$','interpreter','latex');zlabel('$g$','interpreter','latex','Rotation',360)；%Array2clc;clear; Ce=5,Cf=25,Cg1=30,Cg2=0,Ch=20,Ff=0,Fg=10,Fh=0,Ig2=10,Ig1=10,Sh=6,Sg=6,Dg=12;figure(1)for i=0.1:0.2:1 for j=0.1:0.2:1 for k=0.1:0.2:1 for l=0.1:0.2:1 [t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0 50],[i j k l]); grid on plot3(y(:,1),y(:,2),y(:,3),'linewidth',1); set(gca,'XTick',[0:0.2:1],'YTick',[0:0.2:1],'ZTick',[0:0.2:1]) set(gca,'XTickLabel',num2str(get(gca,'XTick')','%.1f')); set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f')); set(gca,'ZTickLabel',num2str(get(gca,'ZTick')','%.1f')); hold on axis([0 1 0 1 0 1]) end end endendxlabel('$e$','interpreter','latex');ylabel('$f$','interpreter','latex');zlabel('$g$','interpreter','latex','Rotation',360)；%Array3clc;clear; Ce=5,Cf=25,Cg1=30,Cg2=0,Ch=20,Ff=0,Fg=10,Fh=0,Ig2=10,Ig1=10,Sh=6,Sg=12,Dg=24;figure(1)for i=0.1:0.2:1 for j=0.1:0.2:1 for k=0.1:0.2:1 for l=0.1:0.2:1 [t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0 50],[i j k l]); grid on plot3(y(:,1),y(:,2),y(:,3),'linewidth',1); set(gca,'XTick',[0:0.2:1],'YTick',[0:0.2:1],'ZTick',[0:0.2:1]) set(gca,'XTickLabel',num2str(get(gca,'XTick')','%.1f')); set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f')); set(gca,'ZTickLabel',num2str(get(gca,'ZTick')','%.1f')); hold on axis([0 1 0 1 0 1]) end end endendxlabel('$e$','interpreter','latex');ylabel('$f$','interpreter','latex');zlabel('$g$','interpreter','latex','Rotation',360)；%Array4clc;clear; Ce=15,Cf=25,Cg1=30,Cg2=0,Ch=20,Ff=0,Fg=10,Fh=0,Ig2=10,Ig1=10,Sh=6,Sg=12,Dg=24;figure(1)for i=0.1:0.2:1 for j=0.1:0.2:1 for k=0.1:0.2:1 for l=0.1:0.2:1 [t,y]=ode45(@(t,y) FP(t,y,Ce,Cf,Cg1,Cg2,Ch,Ff,Fg,Fh,Ig1,Ig2,Sh,Sg,Dg),[0 50],[i j k l]); grid on plot3(y(:,1),y(:,2),y(:,3),'linewidth',1); set(gca,'XTick',[0:0.2:1],'YTick',[0:0.2:1],'ZTick',[0:0.2:1]) set(gca,'XTickLabel',num2str(get(gca,'XTick')','%.1f')); set(gca,'YTickLabel',num2str(get(gca,'YTick')','%.1f')); set(gca,'ZTickLabel',num2str(get(gca,'ZTick')','%.1f')); hold on axis([0 1 0 1 0 1]) end end endendxlabel('$e$','interpreter','latex');ylabel('$f$','interpreter','latex');zlabel('$g$','interpreter','latex','Rotation',360)； |