This function takes three inputs

x - a set of parameters t - the number of time-steps you wish to simulate data - actual data that you are attempting to fit

```
function f = policy_sliroutput(x,t,data)

% set up transmission constants
k_infections = x(1);
k_fatality = x(2);
k_recover = x(3);
k_lockdown = x(4);
k_vac = .3;

% set up initial conditions
ic_susc = x(5);
ic_lockdown = x(6);
ic_inf = x(7);
ic_rec = x(8);
ic_fatality = x(9);

% Set up SIRD within-population transmission matrix
A = [1-(k_infections + k_lockdown + k_vac) 0.4 0 0 0;
    k_lockdown 0.6 0.4 0 0;
    k_infections 0 1-(0.4+k_fatality + k_recover) 0 0;
    k_vac 0 k_recover 1 0;
    0 0 k_fatality 0 1];

B = zeros(5,1);

% Set up the vector of initial conditions
x0 = [ic_susc, ic_lockdown, ic_inf, ic_rec, ic_fatality];

A = sirpolicy(A, x0);
% simulate the SIRD model for t time-steps
sys_sir_base = ss(A,B,eye(5),zeros(5,1),1);
y = lsim(sys_sir_base,zeros(t,1),linspace(0,t-1,t),x0);

% return a "cost".  This is the quantitity that you want your model to
% minimize.  Basically, this should encapsulate the difference between
 your
% modeled data and the true data. Norms and distances will be useful
 here.
% Hint: This is a central part of this case study!  choices here will
 have
% a big impact!

y2 = y(: , [4,5]);
y3 = cumsum(y2);
f = norm(data - y3); % norm of distance.
```

```
end
```

```
Not enough input arguments.

Error in policy_sliroutput (line 9)
k_infections = x(1);
```

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