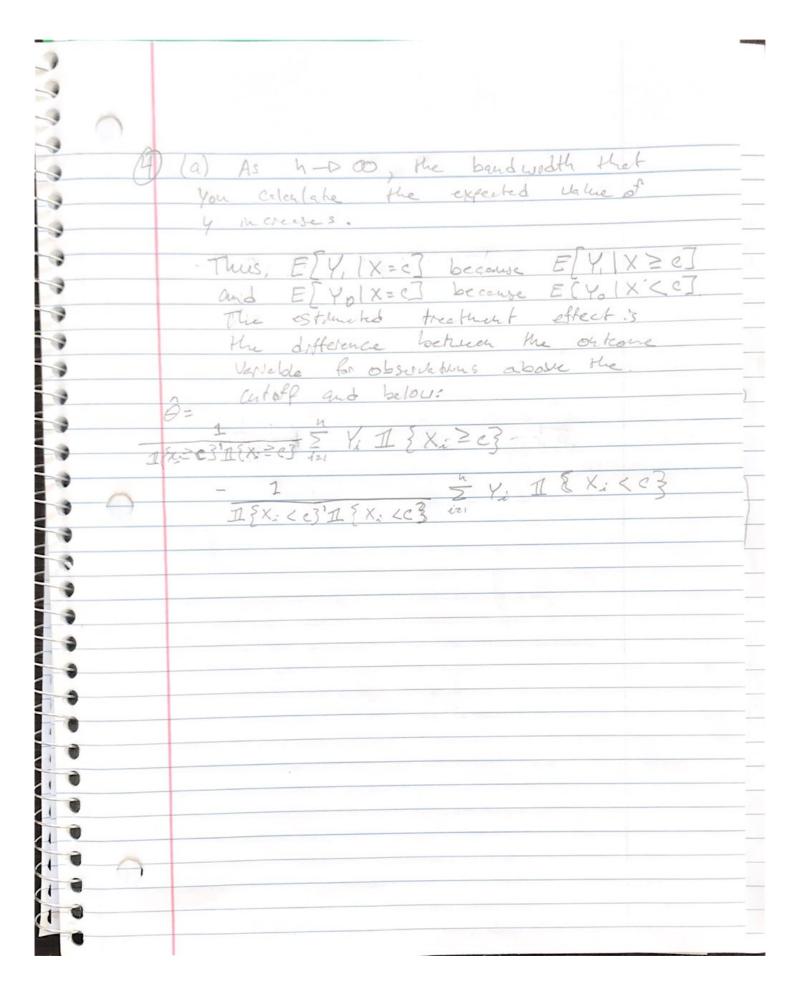
Office yet = yet - y - y + y as the two-way transformed world of yet => Y4 = & Dit + E4 Since E[Elt /Zil, Ziz]=0, We can use IV D= ( n E Zir Dit) ( n E Zir yir The I assume that Zin and Zie are e ithe Value of Z If there are two different instruments we Can use 2525 to estimate 8. [7st Stage, estimate Dit = yo + x, Zi + y, Ziz-OLS: yet = 8 Dix + En ] Let enall W Borce, I assume that we observe Zis & Ziz.

a) We can estimate m(x) u/ a polynomial series regression m(x) = mk(x) = Bo + B, x + ... + Bx xk We can estructe (Bo, B, ..., Bx) V/ OLS, [Suce Ejelx]=0], => mx(x) = Bo + B, x+ ... + Bx xx Thus, we can estimate O(x) w/  $\hat{D}_{K}(x) = \frac{1}{2} \hat{m}_{K}(x)$ = B1 + 2 B2 x + + KBK x K-1 We can choose K usay cross-validation (b). Suppose 0 = a(m) = O(x). Then a(m) = ax Bx where ax = (0, 1, 2, ..., K-1). Then useder some regularity conditions. 1/2 (G-0+9(fx)) -D N(0,2) Where Vy = a'x Qx Ilx Qx ax Q= E[Xx; Xx; ] DK= E KK; XX! ei] Tx (x)2 m(x) - mx (x).

(b) Thres, Vx = ax Qx Dx Qx ax Where QK = n E XKi XKi DK = to Z XKi XKi Xxi= ((x,..., xx The standard error is \$(x) = \ \( \hat{R}(x) \vec{V}\_{\times} \hat{R}(\pi) Where Rfx) =  $\frac{\partial}{\partial B_i}\hat{O}(x)$ d BK (c) the postwise confidence interval is D(x) = 1.96 s(x)



(96) If the bandwidth goes to zero, then the estanded treatment Spect world just be the difference between the treated and untreated observations out the cut off: es, unlike an ordered probat (10,14 thresholds are borden to the researcher. Thus, we can identify the error vallance.

