

So want

$$P(\cap \{Y: p_i(Y) \geq d_i\} \mid Y \in S(p_i), \mathbf{I})$$

As $p_i \uparrow$ investigate how $S(p_i)$ changes
and

$$S(p_i) \quad F_{\eta^T}^{V_q^T(z_0), V^T(z_0)}(\eta^T Y) = F_Z \quad \eta$$

Given z_0 , have $Y = \eta^T Y = F_Z^{-1}(p_i)$

$$S(p_i) \Rightarrow S(p_i) = \{$$

$$= \{Y: z_0(Y) = z_0, Y_i = F_{z_0}^{-1}(p_i)\} \quad \{z_0 \in \mathbb{R}^n\}$$

$$\xrightarrow{\text{thm}} \begin{pmatrix} 0 \\ Y_2 - cY_1 \\ \vdots \\ Y_n - cY_1 \end{pmatrix} = Y - cY_1 = z_0$$

$$\boxed{p_i \uparrow \quad S(Y_i) \uparrow}$$

induct all Y_j s \uparrow

$$= \{Y: Y_i = F_{z_0}^{-1}(p_i), Y_j (j \neq i) = z_j + cY_i\}$$

since $z_0 \in \mathbb{R}^n$

$\Rightarrow S(p_i)$ inclining in $p_i \equiv \text{sort of}$