

# Yci fbU<sup>•</sup> cZHU<sup>•</sup> FYgYUAW<sup>•</sup>

9ROXPH 1XPEHU

&217(176

(GLWRULDO

H-RXUQDO RI 7D[ 5HVHDUFK

(',7256

3URIHVVRU -RKQ 7D\ORQJFKRRO RI \$FFRXQWLQJ \$XGLWLQJ

3URIHVVRU %LQK 7UDQ6FDRRO RI \$FFRXQWLQJ \$XGLWLQJ

\$662&,\$7( (',725

'U \$OH[DQGUD (YDQV 6FKRRO RI \$FFRXQWLQJ \$XGLWLQJ

352'8&7,21 (',725

'U 3HWHU 0HOORU 6FKRRO RI \$FFRXQWLQJ \$XGLWLQJ

(',725,\$/ %2\$5'

3URIHVVRU 5RELQ %RDGZB\$SDUWPHQW RI (FRQRPLFV 4XHHQ¶V

3URIHVVRU &\QWKLD &RO8HPLDQHUVLW\ RI 6\GQH\ %XVLQHVV 6FK

3URIHVVRU \*UDHPH &RRS)HUF XOW\ RI /DZ 8QLYHUVLW\ RI 6\GQH

3URIHVVRU 5REHUW 'HXW6FKRRO RI \$FFRXQWLQJ \$XGLWLQJ

3URIHVVRU &KULV (YDQV6FKRRO RI \$FFRXQWLQJ \$XGLWLQJ



H-RXUQDO RI 7D[ 5HVHDFK YRO QR S L

(GLWRULDO

H-RXUQDO RI 7D[ 5HVHDFK YRO QR SS

7KH UHOHYDQFH RI VXSSO\  
DWWUDFWLQJ IRUHLJQ GLU  
GHYHORSLQJ FRXQWULHV HY

ODKPRXG 0 \$E\$M00DW\*DLG \$EGHO 6DODP \* \$EGHO 6DODP

\$EVWUDFW

0DQ\ GHYHORSLQJ FRXQWULHV FRPPRQO\ XVH WD[ LQFHQWLYHV DV D NH\ LQ  
(PSLULFDO VWXGLHV KDYH LGHQWLILHG D FDXVDO UHODWLRQVKLS EHWZHHQ  
EHFDXVH WKH\ ORZHU PXOWLQDWLRQDO HQWHUSULVHV† 01(V WD[ EXUGHQ









H-RXUQDO RI 7D[ 5HVHDFK

7KH UHOHYDQFH RI VXSSO\ VLGH WD[

PDLQO\ WD[ KROLDIV LQ RUGHU WR PLQLPLVH WKH  
VDPH WLPH WKH\ FDOO IRU LPSOHPHQWLQJ WKH VXSS  
DQG VLPSOH WD[ V\VWHP

7KH 2(&' FODVVLILHV WKH IDFWRUV LQIOXHQFLQJ )',  
7KH WD[ IDFWRUV LQFOXGH WD[ LQFHQWLYHV  
VLPSOLFLW\ ZKLOH QRQ WD[ IDFWRUV LQFOXGH  
DYDLODELOLW\ RI ODERXU IRUFH DQG PRGHUQ LQI  
WD[ IDFWRUV KDYH JDLQHG JUHDWHU LPSRUWDQFH SD  
WD[ IDFWRUV 7KLV LV EHFDXVH WKH XOWLPDWH REM  
EXUGHQ ZKLFK UHVXOWV LQ LQFUHDVLRQJ WKH DIWHU  
DSSHDOLQJ WR LQYHVWRUV ZKR DUH LQIOXHQFHG E\ S  
PDQ\ 01(V WR UHORFDWH WKHLU EXVLQHVV WR GHYHO  
PRUH DWWHQWLRQ WR H[DPLQLQJ WKH UHODWLRQV  
(FRQRPRX HW DO

7KH LPSDFW RI WD[ LQFHQWLYHV RQ LQYHVWPHQW KD  
6KDK DQG 6OHPURG 'HYHUHX[ DQG \*ULIILWK  
/DKUqFKH 5pYLO %HFN DQG &KDYHV %HF  
DQG (FRQRPRX HW DO 6KDK DQG 6OHPUR  
DVVHVW WKH LPSDFW RI LQFRPH WD[DWLRRQ RQ )', L  
HPSLULFDO VWXG\ WR WHVW WKH UHVSQRVLYHQHV R  
WKH SHULRG 7KH UHVXOW RI WKH VWXG\ LQGLFDWH  
LQFRPH WD[ FKDQJHV ZKLFK LPSOLHV WKDW WPSDIWR  
HQFRXUDJH )', %HFNHU )XHVW DQG +HPPHOJDUQ  
DVVHVW WKH UHVSQRVLYHQHV RI )', WR WKH \*HUPDQ  
WD[ FXW DQG EURDGHQHG WKH WD[ EDVH %\ PHDVXU  
WKH\ IRXQG WKDW WKH WD[ FXW KDG D SRVLWLYH LPS





H-RXUQDO RI 7D[ 5HVHDFK

7KH UHOHYDQFH RI VXSSO\ VLGH WD[

DQG LQWURGXFHG LQWHUQDWLRQDO DQWL DYRLGDQFH  
LQGLFDWH ,QFRPH 7D[ 1R RI DPHQGPHQWV W  
DIIHFW WD[ SROLF\ LQ (J\SW 7KHUH LV D SURFHVV IR

H-RXUQDO RI 7D[ 5HVHDFK

7KH UHOHYDQFH RI VXSSO\ VLGH WD[

- \*URVV 'RPHVWLF 3URGXFW\ LJKHWUJ BZWKR ZVW HMDWHV  
WKH HFRQRP\ LV ERRPLQJ DQG \*'3 SHU FDSLWD LV  
LQFUHDVH LQ KR XVHKROG H[SHQGLWXUH
- )RUHLJQ H[FKDQJ\HOD)RUUHF VWDELOLW\ RI H[FKDQJ  
FXUUHQF\ DJDLQVW IRUHLJQ FXUUHQFLHV LV DQ LF

H-RXUQDO RI 7D[ 5HVHDFK

7KH UHOHYDQFH RI VXSSO\ VLGH WD[

7LPH VHULHV DQDO\VLV

7KH IROORZLQJ WLPV VHULHV SORW VKRZV WKH WUHQ  
7KH IROORZLQJ REVHUYDWLRQV FDQ EH PDGH OLQRU  
)URP )', XQGHUZHQW D VLJQLILFDQW LQFUHDV  
\$IWHUZDUGV WKHUH ZDV D GHFOLQH LQ WKH WUHQ  
DJDLQ LQ DQG RQZDUGV XQWLO 7KLV LV VKRZ

)LJ 7LPH 6HULHV SORW RI )',

H-RXUQDO RI 7D[ 5HVHDFK

7KH UHOHYDQFH RI VXSSO\ VLGH WD[

- IURP WR WKH LPSOHPHQWDWLRQ RI D FRQYH RQ XVLQJ WD[ LQFHQWLYHV WR VWLPXODWH )',
  - IURP WR WKH LPSOHPHQWDWLRQ RI D VXSSO RQ HOLPLQDWLQJ WD[ LQFHQWLYHV EURDGHQLQJ W
  - IURP WR GDWH WKH UH LQWURGXFWRQ RI WD[ 7DNLQJ LQWR DFFRXQW WD[ SROLF\ FKDQJHV ZH XVH JRYHUQPHQW RSWV WR LPSOHPHQW HLWKHU D FRQYHQ DV IROORZV
  - \HDUV LQ ZKLFK WKH VXSSO\ VLGH WD[ SROLF\ LV L ZKLOH \HDUV LQ ZKLFK WKH WD[ LQFHQWLYH SROLF\ ]HUR
- )RU WKH FRQWURO YDULDEOHV ZH XVH VHFRQGDU\ GD )XUWKHU ZH XVH WKH :RUOG %DQN 'DWDEDVH RI :RU YDOXH RI SROLWLFDO VWDELOLW\ GDWD
- 'HVFULSWLYH VWDWLWLVFV DUH XVHG WR GHVFULEH V

H-RXUQDO RI 7D[ 5HVHDFK

7KH UHOHYDQFH RI VXSSO\ VLGH WD[





7KH WD[ LQFHQWLYHV WDNH YDULRXV IRUPV VXFK DV DQG UHGXFHG WD[ UDWHV ,Q DGGLWLRQ WR IRUJRQH RI GLVDGYDQWDJHV WKDW HQFRXUDJH VRPH FRXQWULSROLF\ NQRZQ DV VXSSO\ VLGH WD[DWLQR ZKLFK LV E HOLPLQDWLQJ WD[ DOORZDQFHV GHGXFWLRQV H[HPSFUHDWHV D PRUH FRPSHWLWLYH WD[ V\ VWHP %RWK DWKH WD[ EXUGHQ DQG WR LQFUHDVH )' , LQIORZ +RZDERXW ZKHWKHU D WD[ LQFHQWLYH RU VXSSO\ VLGH DWWUDFWLQJ )' , ,Q RUGHU WR HPSLULFDOO\ LGHQWLFRRRVH WKH FDVH RI (J\SW ZKLFK KDV LPSOHPHQWHG

,Q WKLV DUWLFOH ZH XVHG D UHJUHVVLQR PRGHO 2/LPSDFW RI VXSSO\ VLGH WD[DWLQR RQ LQIORZ )' , LQ (SROLF\ SUDFWLFHV LQ (J\SW ZKLFK KDYH HYROYHG V

(J\SW HPSOR\HG WD[ LQFHQWLYHV DV D NH\ GHWHUPLQ ,Q D QHZ WD[ SROLF\ ZDV LPSOHPHQWHG WKURXORZHULQJ WD[ UDWHV WKH VXSSO\ VLGH WD[ SROLF\ GDWD IURP WR VKRZ WKDW WKH WD[ LQFHQWLY )' , ZKLOH WKH VXSSO\ VLGH WD[DWLQR SRVLWLYHO\ D (J\SW 7KLV UHVXOW GUDZV DWWHQWLRQ IRU SROLF\ GHVLJQLQJ EURDG EDVHG WD[ OHJLVODWLRQ ZLWK D F KDYH D SRVLWLYH LPSDFW RQ WKH FRXQWU\ V FRPSH UHLQWURGXFWRQ RI WD[ LQFHQWLYHV XQGHU WKH FRPSOH[LW\ RI WD[ V\ VWHP DQG LV QRW H[SHFWHG WR

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\$EGHOODWLI 0 0 μ/RRNLQJ IRU HILFLHQW WD[ LQFHQWLY HFRQRPLF UHURZWHQ DQG -RXUQDO RI 7D[DWLQRQ RZ DSS 3I

FRXQWULHV 7KH FDVH RI WDU\XOWHGWD[RIQ, QWQWLDWLQR QR SS

\$MD] 7 \$KPDG ( μ7KH HIIHFW RI FRUUXS WLRQ DQGWBRQ 'HYHORSPHQWRSHYLHQR SS

\$XHUEDFK \$ - 6OHPURG - μ7KH HFRQRPLF -RXUQDO RI W (FRQRPLF /LWRODWXQR SS

-RXUQDO RI (FRQRPLF 6WQLHLVSS

\$QGHUVHQ 0 5 .HWW % 5 YRQ 8H[NXOO ( μ&RUSRUDW FRXQWULHV LQREDOGLDQWPHQW FRPSHWLWLYHQHV LQYHVWRU SHUVSHFWLYH:R DQG \$BQNF\ :D \$BQNF\ :D RQRQ & SS





H-RXUQDO RI 7D[ 5HVHDFK YRO QR SS

\* 67 WUHDWPHQW RI HOHFV  
FRPSDULQJ WKH 6LQJDSRUH  
DSSURDFKHV

(YJHQ\ \*XJO\XQD\WLNRODL 0LORJRORY

\$EVWUDFW

7KLV DUWLFOH DQDO\VHV WKH \$XVWUDOLDQ DQG 6LQJDSRUHDQ LQGLUHFV W  
VSHFLILFDOO\ IRFXVLQJ RQ PHFKDQLVPV IRU WD[DWLRLQ RI FURVV ERUGHU W  
WD[ \*67 PHFKDQLVPV EURDG EDVH ORZ UDWH DQG OLPLWHG H[HPSWLRQV  
GHWHUPLQDQWV RI WD[ SROLF\ VL]H RI WKH HFRQRPL\ GHSHQGHHQH RQ IRU  
KRZ WKHVH FRXQWULHV DGDSW WKHLU LQGLUHFV WD[ V\WHPV WR GLJLW  
6LQJDSRUHDQ H FRPPHUFH WD[DWLRLQ V\WHPV DV SRLQWV RI UHUUHQFH W  
IRU H[DPSOH QHXWUDOLW\ DQG IDLUQHVV IRU DQ HILFLHQW V\WHP RI H F  
LQ WKRVH WZR FRXQWULHV DJDLQVW WKHVH FULWHULD

.H\ ZRUGV LQGLUHFV WD[DWLRLQ WD[ SROLF\ HOHFURQLF FRPPHUFH 6LQJDSR

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6HQLRU /HFWXUHU 6FKRRO RI /DZ DQG -XVWLFH 6RXW  
(YJHQ\ \*XJO\XYDW\#VFX HGX DX  
6HQLRU 5HVHDFKHU 7D[ 3ROLF\ &HQWHU )LQDQFLDO 5HVHDFK  
/DERUDWRU\ RI 7D[ 3ROLF\ 5HVHDFK 5XVLDQ 3UHVLGHQWLDQ  
\$GPLQLVWUDWLRLQ 5\$(3\$ 0RVFRZ 7KLV UHVHDFK KDV EHHQ  
8QLYHUVLW\ 7D[ \$FDGHP\ &HQWHU IRU ([FHOHQFH LQ 7D[DWLRLQ  
DQRQ\PRXV UHYLHZHUV IRU WKHLU IHHGEDFN WKDW KHOSHG LPSU

,1752'8&7,21

(OHFWURQLF FRPPHUFH H FRPPHUFH L,Q WUFRZLQW URDS  
 H FRPPHUFH WUDQVDFWLRQV KDYH EHFRPH WKH QRU  
 ERUGHU IORZV KDYH EHFRPH IDVW+RUZ IDYIGUH DWL[HDW WR  
 WKHVH WUDQVDFWLRQV UDLVHV YDULRXV FKDOOHQJH  
 H[DPSOH D UHFHQW OLQH RI 2UJDQLVDWLRQ IRU (FR  
 2(&' UHFRPPH~~Q~~Q~~W~~UR~~Q~~Q HV VRPH RI WKH WD[ UHODW

H-RXUQDO RI 7D[ 5HVHDFK

\*67 WUHDWPHQ





- 6LQJDSRUH LV D SHUIHFW ORFDWLRQ IRU VWDUWL IDYRXUDEOH EXVLQHVV FOLPDWH LW UDQNHG VHFR UDWLQJV IRU
- 6LQJDSRUH LV D SRSXODU GHVWLQDWLRQ IRU EXVL RI LWV FRPSHWLWLYH WD[ V\WHP KLJKO\ GHYHORS EXVLQHVV FRQGLWLRQV

( FRPPHUFH UHIHUV WR EXVLQHVV WUDQVDFWLRQV V HOHFWURQLFDOO\ \$Q\ VXSSO\ RI JRRGV RU VHUYLFHV YLD WKH LQWHUQHW RU DQ\ RWKHU HOHFWURQLF PH FRPPHUFH 7KLV DOVR DSSOLHV ZKHQ WUDQVDFWLRQ\ FRPPHUFH VHUYLFH SURMDOGHU WKDW WUDGLWLRQDO \*6 FURVV ERUGHU H FRPPHUFH LQ 6LQJDSRUH LQ SDUW VHFWRQ \*RRGV WQK 6HUYLFH LQJDSRUH DQG WKH ORZ YDOXH LPSRUW LWLW\ \$XU SURRHW WKH VDOH RI JF HWF YLD WKH LQWHUQHW LV WUHDWHG DV D VXSSO\ RQOLQH PXVLF JDPHV VPDUWSKRQH DSSV GRZQORD WUHDWHG DV VXSSO\ RI VHUYLFHV

7KH FXUUHQWO\ RFFXUULQJ \*67 UHIRUP LQ 6LQJDSR GHVFULEHG LQ 7DEOH EHORZ

7DEOH \*67 5HIRUP LQ 6LQJDSRUH

(OHPHQW RI UHIRUP	(IIHFWLYH GD
5HYHUVH FKDUJH PHFKDQLQJ LPSRUW RI % UHPRWH ERWK GLJLWDO DQG QRQ GLJLWDC	
5HPRWH YHQGRU UHJLVWUXLQJ PHFKDQLV IRU LPSRUW RI %	
([WHQVLRQ RI YHQGRU DQ\ LWV WUDWLRQ PHFKDQLV IRU LPSRUW RI % & UHPRWH ERWK GLJLWDC	
5HYHUVH FKDUJH PHFKDQLQJ LPSRUW RI % ORZ YL	
5HPRWH YHQGRU UHJLVWUXLQJ PHFKDQLV IRU LPSRUW RI %	

6RXUFH FRPSRVHG E\ DXWKRUV EDVHG RQ ,QODQG 5H \*67 RQ ,PSRUW HWYLYLEZZ LUDV JRY VJ LUDVKRPH \* EXVLQHVVHV \*67 DQG 'LJLWDO (FRQRP\ \*67 RQ ,PSRUW

:RUOG %DQN %XVLQ:RVWG %DQN  
 3RRMD 6LQJK μ:K\ 6LQJDSRUH (QWDH6WDCWKSPEUDGLVHJ  
 KWWSV ZZZ HQWHSUHQREHFRPHGUW-LFH  
 'HORLWWH6LQRESRH \*RRGV DQG 6HUYLFRHV 7DQ\ (GLVGRUVRDQPHS  
 > @ \*67 7UHDWPHQW IRU H &RPPHUFH 7UDQVDFWLRQV  
 ,QODQG 5HYHQXH \$XWKRU\WKHSHLQJDISRUH JRPFRUFHOD\  
 ,ELG

&URVV ERUGHU VXSSO\ RI JRRGV

\$OO SK\VLFDQ JRRGV VXSSOLHG RYHU WKH LQWHUQ  
UHJLVWHUHG DQG WKH VXSSO\ LV FRQGXFWHG LQ 6LQ  
]HUR UDWLQJ LV DYDLODEOH IRU WKH VXSSO\ RI JRRG  
FRQVXP~~HW~~ VXSSO\ RI JRRGV EHWZHHQ DQ RYHUVHDV  
SXUFKDVHU ZLOO DWWUDFW \*67 ZKHQ WKH JRRGV DUH



WKDW HQWLW\ ZLOO EH UHTXLUHG WR FKDUJH \*67 WR  
LQDFWLYH IRU D YHU\ ORQJ WLPH +RZHYHU HIIHFWL  
VHUYLEFHV GLJLWDO DQG QRQ GLJLWDO SXUFKDVHG  
VXEMHFW WR \*67 XQGHU WKH UHYHUVH FKDUJH PHFKD  
\$XWKRULW\ RI 6LQJDSRUH

>Z@LWK WKH DGYHQW RI WHFKQRORJ\ EXVLQHV  
SURFXUH VHUYLEFHV IURP RYHUVHDI WKDW LQ WK  
VHUYLEFH SURYLGHUV 8QGHU WKH FXUUHQW \*67  
WKDQ DQ H[HPSW VXSSO\ SURFXUH IURP D OR  
VXEMHFW WR \*67 ZKLOH WKH VDPH VXSSO\ RI  
RYHUVHDI VXSSOLHU L H LPSRUWHG LV QRW V  
FRQVXPHG LQ 6LQJDSRUH

)IURP -DQXDU\ RYHUVHDI GLJLWDO VHUYLEFH SUR  
\HDOO\ JOREDOR WXUQRYHU RI PRUH WKDQ 6\*' PLOOLF  
GLJLWDO VHUYLEFHV WR FXVWRPHUV LQ 6LQJDSRUH LQ  
IRU \*67 DQG FKDUJH VHUYLEFHV DUH GHILQH G DV V  
RYHU WKH LQWHUQH RU DQ HOHFWURQLF QHWZRU  
LQWHUYHQWLRQ DQG DUH LPSRVVLEOH ZLWKRXW WKH

7KH ,5\$6 SURSRVDOV ZHUH ILUVW 7KH 6LQJDSRUH  
PHFKDQLVPV SURSRVHG IRU WKH WD[DWLQR RI FURVV  
DFFRUGDQFH ZLWK WKH FRXQWU\ RI GHVWLQDWLQR S  
LQWR RRGV DQG 6HUYLEFHV DQG 6HUYLEFHV 7D[ \$F  
\$FW 7KH 6LQJDSRUHDQ OLQLVWHU IRU )LQDQFH DQG  
QHZ UXOHV ZRXOG EH LQ IRUFH IURP -DQXDU\ \$  
WKH \*67 PHFKDQLVP LV SUHVHQWHG LQ 7DEOH

7DEOH 6XPPDU\ RI 1HZ \*67 5XOHV LQ 5HODWLQR W  
'LJLWDO 6HUYLEFHV ± 6LQJDSRUH

(OHPHQW RI SURSRVHG UXOHV	% &	%
3ODFH RI VXSSOH DORR IURP WR PHV VHUYLEFHV GHWHUPLQH E\ SUR	U3ODFH RI DORR IURP WR PHV (LQJDSRUHDQ EXVLQHV EUDQFK UHJLVWHUH UHJLVWHUH IR	

\*RRGV DQG 6HUYLEFHV 7D[ \$FW  
,QODQG 5HYHQXH \$XWKRULW\ RI 6LQJDSRUH PHFKDQLVPV EDEYHQ5HYH  
,QODQG 5HYHQXH \$XWKRULW\ RI 6LQJDSRUH µ3XUFKDVLLQ 5HPRV  
KWWSV ZZZ LUDV JRY VJ LUDVKRPH \*67 &RQVXPHUV 3XUFKDVLLQ  
3URYLGHVHVHG -XQH  
,ELG  
,QODQG 5HYHQXH \$XWKRULW\ RI 6LQJDSRUH 6HUYLEFHV E\ :  
&KDUJH 'UDIWH ,QODQG 5HYHQXH \$XWKRULW\ RI 6LQJDSRUH 6HUYLEFHV E\ :D\ RI DQ 2YHUVHDI 9HQGRU 5HJLVWUDWLQR 5HJLPH  
,QODQG 5HYHQXH \$XWKRULW\ RI 6LQJDSRUH 6HUYLEFHV E\ :D\ RI  
'UDIWHRYH Q ,QODQG 5HYHQXH \$XWKRULW\ RI 6LQJDSRUH 6HUYLEFHV E\ :D\ RI  
2YHUVHDI 9HQGRU 5HJLVWUDWLQR 5HJLPH 'UDIWH

	<p>3D\PHQW SUR[\ HJ HFWW B E Q W W K P D H Q W IL[HG  LQIRUPDWLRQ EDV H G W B E Q O L V K P Q W RU XVX  LGHQWLILFDWLRQ R X P E H U G H Q E D Q H S O D F  DFFRXQW GHWDLOV L Q L R W S R U L D W Q F G B U R S O D  HJ ELOOLQJ DGGUHFV R Q W R P M X D G Q H V V L Q 6  LLL DFFHV SUR[\ HJ PRELOH  FRXQWU\ FRGH RI 6 W 0 G R D V G Q R W P D W W H U Z  DGGUHVV ORFDWLRQ E X V I L Q H M G U H F L S L H Q W L V  WKURXJK ZKLFK WKH U * 6 7 V H U Y L F H L V  VXSSOLHG</p>	
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7KUHVKROG	<p>*OREDO WXUQRYHU H R F W K G L H Q J K R O G  PLOORQODQG PDNLQJ % &amp; VXSSOLHV RI  GLJLWDO VHUYLFHV WR FXVWRPHUV LQ  6LQJDSRUH H[FHHGLQJ 6*'</p>	
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0HFKDQLVP RI W D D [ WR EH SDLG E\ UHPRWH YHQGRU RU  
FROOHFWLRQ RQOLQH SODWIRUP VHOOLQJ GLJLWDO  
VHUYLFHV LQ FHUWDLQ FLUFXPVWDQFHV

µ7KH RSHUDWRU RI WKH HOHFWURQLF  
PDUNHWSODFH ZLOO EH UHJDUGHG DV WKH  
VXSSOLHU LI DQ\ RI WKH IROORZLQJ  
FRQGLWLRQV DUH PHW

L 7KH HOHFWURQLF PDUNHWSODFH  
DXWKRULVHV WKH FKDUJH WR WKH  
UHFLSLHQW

LL 7KH HOHFWURQLF PDUNHWSODFH



H-RXUQDO RI 7D[ 5HVHDFK

\*67 WUHDWPHQ

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H-RXUQDO RI 7D[ 5HVHDFK

\*67 WUHDWPHQ





'LYLVLRQ \$ 1RHZW7D[ 6\ VWHP \*RRGV DQG WKHY\*67H\$FWD[  
RXWOLQHV WKH \*67 WUHDWPHQ\$ QWD[DEWB[DESRHUMPSRURVQ  
LQ VHFWLRQ WDEO\ VHFWLRQ SURYLGHV WKDW WH  
LPSRUWHU WR EH UHJLVWHUHG IRU \*67 DQG WKH LPSP  
HQWHUSIUWKHH QRQ UHVLGHQW VXSSOLHU LV WKH LPSP  
WD[DEOH VXSSO\ DQG ZLOO WKHIZHMRUH DEHYROLDGEBUM  
FKDUJH PHFKDQLVP ZDV LQWURGXFHG LQWR \*67 ODZ



DUUDQJLQJ RU IDFLOLWDWLQJ GHOLYHU\ RI WKH JRR  
 IRUZDUGLQW XDWLRQV LQ ZKLFK D VXSSOLHU PDNHV W  
 SDUWLHV RU SURYLGHV DVVLVWDQFH WR WKH SXUFKD  
 VLPLODUO\ FRYHUHG E\, IWKHLQVLRG DEHGGODZ YHUHG  
 IUHLJKW IRUZDUGHU DV D UHVXOW RI DQ DUUDQJH  
 ZLOO EH WUHDWHG DV PDNLQJ WKH VXSSO\ 7KH IUHLJ  
 WR UHJLVWHU IRU \*67 SXUSRVHV LI LWV DQQXDO WXU  
 IRUZDUGHU FRYHUHG E\ WKLW \*67 SURYLVLRQ ZLOO C  
 VXSSOLHU DERXW WKH WUDQVDFWLRQ VXFK DV WKH  
 DEOH WR PHHW LWV \*67 OLDELWLW\

\$FFRUGLQJ WR WKH QHZ ODZ DQ \$XVWUDOLDQ FRQVX  
 DQ \$XVWUDOLDQ UHVLGHQW \$Q HQWLW\ LV D FRQVXP

D' WKH HQWLW\ LV QRW UHJLVWHUHG RU

E' LI WKH HQWLW\ LV UHJLVWHUHG WKH HQWLW\ GRH  
 SDUWO\ IRU WKH SXUSRVH RI DQ HQWHUSULVH WKDV

1RWDEO\ WKH FRQQHFWLRQ LV QRW WKH SODFH RI FR  
 WKH FRQVXPHU DV DQ \$XVWUDOLDQ UHVLGHQW DQG  
 ,GHQLI\LQJ D FRQVXPHU DV DQ \$XVWUDOLDQ UHVLGHQ  
 \$VVHVPHQW & \$FW PLJKW EH D FRPSOH[ WDVN 7R DGGI  
 SURYLGHV WKDW D VXSSOLHU LQ VRPH VLWXDWLRQV L



H-RXUQDO RI 7D[ 5HVHDFK

\*67 WUHDWPHQ

RI WKH \*67 \$FW LQ RUGHU WR PDNH D VXSSO\ RI  
WD[DEOH VXSSO\ IRU \*67 SXUSRVHV XQOHVV WKH VXS  
\$FFRUGLQJ WR WKH DPHQGHG ODZ VXFK VDOHV DUH Q  
ZD\ DV DUH VXSSOLHV PDGH E\ \$XVWUDOLDQ WD[DEOH  
NH\ FKDQJHV DUH DV IROORZV

!

! WKH VHUYLFH LV SURYLGHG E\ PHDQV RI HOHFWURQ

! WKH VXSSOLHV DUH PDGH E\ HOHFWURQLF FRPPXQL

,I DQ ('3 VXSSOLHV ORZ YDOXH JRRGV WKH UHTXLUH  
FRPPXQLFDWLRQ ZLOO QRW DSSO\ 7KH RSHUDWRU RI  
VXSSO\ LQYROYHV ERWK D IUHLJKW IRU ~~FRPPXQLFDWLRQ~~ DQG D  
FDUULDJH VHUYLFH DV SHU7WQH GRPHXQWLRQWLRQW \$LF  
SURYLGLQJ DFFHVV WR D SD\PHQW V\WHP SURFHVV  
QRW FRYHUHG E\ WKH FRQFHSW RI ('3 7KH LQWHQWLR  
WHOHFRPPXQLFDWLRQV VHUYLFHV DQG FUHGLW FDUG  
RSHUDWLRQ RI WKH SURYLVLRQ

,Q VLWXDWLRQV ZKHUH D VXSSO\ LQYROYHV PXOWLSOH  
EHWZHHQ WKH SDUWLHV WKH VXSSOLHU ZLOO EH GH

D' UHFHLYH RU DXWKRULVH FRQVLGHUDWLRQ IRU WKH

E' DXWKRULVH GHOLYHU\ RI WKH VXSSO\

\$GGLWLRQDOO\ VXEMHFW WR FHUWDLQ FRQGLWLRQV  
ZLWK WKH VXSSOLHU WKDW WKH VXSSOLHU ZLOO EH O

6XSSOLHUV FRYHUHG E\ WKHVH SURYLVLRQV DUH UHT  
WKH\ FDQ DOVR HOHFW WR EH WUHDW ~~WKH GRPHXQWLRQWLRQW~~  
UHJLVWUDWLRQ WKUHVKROG RI \$8' ÔSHU \HDU ZL  
WKH UHJLVWUDWLRQ WKUHVKROG DSSO\LQJ WR GRPHV  
OHVVHU FRPSOLD~~õ~~HVVWLU





H-RXUQDO RI 7D[ 5HVHDFK

\*67 WUHDWPHQ

H-RXUQDO RI 7D[ 5HVHDFK

\*67 WUHDWPHQ









H-RXUQDO RI 7D[ 5HVHDFK

\*67 WUHDWPHQ

)DLUQHVV





QHXWUDOLW\ DW OHDVW ZLWKLQ WKH ERUGHUV RI  
OHJLVODWLRQ

5HVXOWV RI FRPSDUDWLYH DQDO\VLV

7KHUH DUH VRPH LPSRUWDQW VLPLODULWLHV EHWZHH  
WD[ WUHDWPHQW RI LPSRUWHG GLJLWDO VHUYLFHV I  
% & WUDQVDFWLRQV DQG WKH UHYHUVH FKDUJH PHF  
WD[DWLRQ LQ WKH FRXQWU\ RI FRQVXPSWLRQ 7KLV  
FRQYHQWLRQDO DQG WKH 2(&' UHFRPPHQQV LW 6RPH  
SROLFLHV LQFOXGLQJ WKH (8 PHPEHU VWDWHV 6XFK  
IDLUQHVV ILVFDO HIILFLHQF\ DQG DGPLQLVWUDWL  
DFRPPRGDWHV WKH UHDOLW\ RI GLJLWDO H FRPPHUF  
PDUNHW GRPLQDQFH RI ODUJH LQWHUQHW SODWIRUPV

:LWK UHJDUG WR % % VXSSOLHV WKH 2(&' \*XLGHOLQH

WKDW ORFDO 9\$7 OHJLVODWLRQ PD\ QRW UHTXLU  
WKH HVWDEOLVKPHQW RI XVH LV HQWLWOHG WR  
VXSSO\ ,Q VXFK FDVHV WKH WD[ DGPLQLVWUDW  
-XULVGLFWLRQV WKDW GR UHTXLUH D UHYHUVH  
UHFRPPHQQHG WR PDNH WKLV FOHDU

7KLV VLPSOLILFDWLRQ PHDVXUH LV TXLWH HIIHFWLYH  
IRU % % VXSSOLHV RI GLJLWDO VHUYLFHV

%DVHG RQ WKH DERYH DQDO\VLV RI 6LQJDSRUHDQ I  
WUHDWPHQW RI H FRPPHUFH D VLJQLILFDQW GLIIHU  
SLRQHHULQJ WKH QHZ DSSURDFK EDVHG RQ WKH RII  
FRPSOLDQFH UHTXLUHPHQWV IRU RIIKRUH VXSSOLHU  
2Q WKH RWKHU KDQG 6LQJDSRUH LV DGKHULQJ WR D  
VXSSOLHUV ZLWK H[HPSWLRQ IRU ORZ YDOXH JRRGV I  
HIIHFWLYH IURP -DQXDU\ WKH H[LVWLQJ LPSRU  
UHPDLQ ZKLFK PHDQV WKDW VXFK VXSSOLHV ZLOO QR  
RI RWKHU JRRGV EXW UDWKHU DV DQRWKHU NLQG C  
LPSRUWDWLRQ RI GLJLWDO VHUYLFHV

7KH \$XVWUDOLDQ DSSURDFK LQ LPSOHPHQWLQJ D ]HU  
FDQ EH MXVWLILHG RQ WKH IROORZLQJ JURXQGV

WKH \$XVWUDOLDQ GRPHVWLF PDUNHW LV TXLWH VL  
VXSSOLHUV DQG WKHUH LV WKHUHIRUH SRWHQWLDO I

WKH VFDOH RI GLVWRUWLRQ RI FRPSHWLWLRQ DQG  
GRPHVWLF DQG IRUHLQJ VXSSOLHUV LV UHODWLYHOV  
6LQJDSRUH





H-RXUQDO RI 7D[ 5HVHDFK YRO QR SS

7D[SD\HU ZHDOWK DQG IHGH  
D WD[ SROLF\ WKDW VKLHOG  
IRU JURZWK IURP WD[HV

5REHUW 0 +XOO

,1752'8&7,21

'XULQJ 'HFHPEHU WKH 86 &RQJUHVV SDVVHG WKH  
 WKDW ORZHUHG WD[ UDWHV HQDEOLQJ LQGLYLGXDO  
 HDUQLQJV :LWK ODUJHU HDUQLQJV JUHDWHU FRQV  
 ZRXOG IROORZ WKHUHE\ ERRVWLQJ JURZWK LQ UHDO  
 3ROLF\ &HQWHU 73& UHSRUWV WKDW WKH HVWL  
 DERXW IRU ERWK DYHUDJH RI VL[ VRXUFHV  
 ILYH VRXUFHV SRUWHG E\ 3DJH WKH -RLQW &RP  
 H[SHFWHG DW WKH WLPH RI 7&-\$ LQ 'HFHPEHU D  
 LQ IHGHUDO WD[ UHYHQXH IRU WKH QH[W WHQ \HDUV  
 LV RI WKH SURMHFWHG 86' WULOOLRQ LQ 86  
 HVWLPDWH RI LV FRQVLVWHQW ZLWK WKH SURMHF  
 %XGJHW 2IILFH &%2 DV WKH DYHUDJH IRU

ORWLYDWHG E\ LQHIILFLHQFLHV LQ 86 WD[ ODZV ZH V  
 SUREOHP E\ H[SORULQJ D WD[ ODZ FKDQJH ZKROBFDQ  
 ZLWK D UHWDLQHG 506 ZKQJH WDWV KSHG HDUWDPJV  
 GHGXFWLEOH H[SHQVH, QHWHKHLV DLQHVFOMWHDQ VXE  
 RI JURZWK WKDW LV VXSHULRU WR DQ\ JURZWK UHODV  
 H[LVW RYHU WLPH 7KH WD[ ODZ FKDQJH WKDW ZH SUR  
 HVSHFLDOO\ WKRVH UHODWHG, WRKDWK HDV B[XG MGGXFEWL R  
 DQG WKH WD[DWLRQ RI IXQGV XVHG IRU JURZWK

7R WHVW WKLV WD[ 506 HSKODFHZ ZKQJH WDW &DSLWDO  
 ORGHO &60 GHYHORSHG E\ +XOO D 3ULI  
 &60 +XOO XWLOLVHG D IUDPHZRUN VLPLODU WR  
 XVLQJ PDUNHW DQG FRPSDQ\ GDWD IRU WKH \$XVWUD  
 (QHUJ\ 7KH &60 HTXDWLRQV DV SUHVHQ, W606 \R+XOO  
 576 %\ LQFOXGLQJ &605HTXDQVEHRQOLZKROH IREHIDQWD[ VI  
 WD[HG ZH DGGUHVV WKH 76LKWDRUDYRQUSUGHEHQRYGHE  
 WD[DWLRQ RI IXQGV WKDW WRR RIWHQ PDNHV JURZWK  
 HTXDWLRQV DUH FDSDEOH RI LGHQWLI\LQJ ZKLFK WD  
 \LHOGV JUHDWHU PD[LPHILUVPSYDQXHWKDWUHDWHU  
 UHYHQXH \$V UHTXLUHG E\ WKLV VWXG\ WKDW LQFOX  
 &60 HTXDWLRQV FRYHU WKH WZR PDLQ )32 IRUPV RI R









H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

)DLOXUH WR SURPRWH 576

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

IRU )32V EXW VRPH DOVR ZRUN IRU QRQ SURILWV DQG  
IHGHUDO JRYHUQPHQWDO ~~QMYKHUVSH\$W RYDIFR WQVSLDRUJ~~  
PRUH WKDQ WZLFH WKDW RI SDVV WKURXJKV DQG QHD

)LJ 6RXUFHV RI 86 )HGHUDO 7D[ 5HYHQXH

6RXUFH )URP -&7

\$PDGHR

DQG \*UHHQEHUJ

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

6HFRQZH FDQ DVVHV LI LW LV UHDVRQDEOH WR DGO  
FRUSRUDWLRQV RU SDVV WKURXJKV RU ERWKWKUH PRV  
SHUVRQDOVWUFDH ZUWK WKH SDVV WKURXJK VRXUFH  
ERWK VRXUFHV SD\ WD[HV DW WKH SHUVRQDO WD[ OHY  
WKURXJKV DUH WKHROXUHSWUVRQDOVWUFDHUV

)RU WKLV VWXG\ ZH FKRRVH WRWKHRSJUDWUHQV  
WKH SDVV WKURXJK VRXUFH RI UHYHQXH WR IRUP WKH  
WKUHH FDWHJRULHV RI & FRUSWUVRQDOVWUFDHUV

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

OHYHO WD[ UDWH KD WY D OSR W6 WKO 0 E MHHR S/SRQ LW H HII  
J WKH SRVLW L5Y (G R I P I L H F D W H U R W K H Q H Z J C H Q L W K H H I E X F W Q I  
OHYHO WD[ UDWH IDOOV

9DOXDWLRQ PRGHOV

9DOXDWLRQ PRGHOV FRPSXWH ZHDOWK 8VLQJ WKHV  
PD[LPLVDWLRQ LV WKH EHVW ZD\ WR LQVXUH WKHUH L  
LQIUDVWUXFWXUH DQG JRYHUQPHQWDO VHFUWLPHV VPD  
SDULEXVHDWHU WD[SD\HU ZHDOWK OHDGV WR JUHDWH  
ZLWK )32 EXVLQHVV ZHDOWK DV WD[SD\HUV RZQ WKHV  
WKHP 7D[SD\HUV HYHQ WKRVH HPSOR\HG E\ QRQ SU  
DQG IHGHUDO DUH OLQNHG WR EXVLQHVV ZHDOWK D  
RQ )32V WR VXSSO\ WKHLU UHYHQXH VWUHDPV

,Q WKLV DUWLFOH WKH FRQDPSWDS WFDJHLV XPDILPXPYWC  
ZHDOWK FRQVLVWV RI YDOXDWLRQ IURP WZR JHQHUD  
VXSSO\ ILQDQFLQJ HTXLW\ DQG GHEW 7KH NH\ WR DF

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

'DPRGDUDQ VXSSOLHV ,& 6 D B W P H V O O I K G H D E F W D Y G F U  
'DPRGDUDQ & 5 H S R W W V P V R I U D Q J H V ) R U R X U W H V W V





H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

DV ORQJ DV WKH GLIIHUHQWLDO LV UHDVRQDEO\ FORV  
ZLWK D GLIIHUHQWLDO ZRXOG JHQHUDWH VLPLOD  
FORVH WR WKH SHUFHQWDJHV ZH XVH

:H FDOO WKH LQFUHDVH PDUJRPXIPQIKDEFLDOXJURZWK  
DV WKH ILUP VL]H DSSMYSWVHGVHDFWURPULQHG DV VKRZ  
VWHS SURFHGXUH LQ \$SSHQGL[

\$V GLVSOD\HG ODSYDOLQHXVDEDDJH IURP WR  
WHVWV 6LQFH SUH 7&-\$ WHVWV GR QRW\$KLDYHIVKH H  
DOO SUH 7&-\$ WHVWV 7KH RXWFRPHV ZKHQ XVLQJ H  
HTXLYDOHQW WR)P)ROR6SO\LQJ WELHWK)H\$D,S,OWFXDECOH  
PXOWL\$Q\EQ6\$)ZKLOH PDUQWDLQLQDQXVHV YDOXHV IRU  
ZHDOWK DQG IHGHUDO WD[ UHYHQXH R\$M)F&PHQJWR E  
HQKDQFHG JURZWK WR LQFUHDVH UHDVOD[9LDVQRWDVX  
RQO\ FRQVLVWHQW ZLWK 73& EXW DOVR FRQVLV  
VHFWLRQ WKDW ILQGV \*'3 ULVHV ZKHQ WD[ UDWHV

7\$;3\$<(5 :(\$/7+ \$1' )('5\$/ 7\$; 5(9(18( 5(68/76

7KLV VHFWRQ SUHVHQWV UHVXOWV IURP DSSO\LQJ W  
:H UHSRUW UHVXOWV IRU WD[SD\HU ZHDOWK DQG IH  
DQG WDEOH IRUPDWV :H ILQG WKDW D WD[ SROLF\ DO  
576 LV VXSHULRU WR WKH FXUUHQW WD[ ,SRO:HF\ WKDW  
DOVR VKRZ WKDW RZQHUVKLS IRUPV576DQWDPKGPWVUK  
FKRLFH,76R176GRHV QRW H[HUFLVH DQ LPSRUWDQW LQ  
WR ILUP YD'OXH UDWLR

WU[SSKLFDO UHVXOWV IRU & FRUSRUDVLRQV DQG SDVV WKU

8VLQJ WKH &60 HTXDWLRQV ZH JHQHUDWH D VHULHV  
WR ILUP YD'OXH)URVLRKLV VHULHV9ZZHLFLGHQWVXUQ UH  
2'9 )URP WKH FDVK IORZV IRUPH[7XZWFROGSXGHEWDEOXH  
WHQ WD[ UHODWHG YDULDEOHV 2XWFRPHV IRU WKHV  
)LXUHVZLWK WKH ILUVV IRXU RXWFRPHV LQYROYLQJ  
ODVW VL[ RXWFRPHV LQYROYLQJ IHGHUDO WD[ UHYHQX  
E\ GLYLGLQJ E\ 86' ZKLFK LV DPRXQW RI WKH E

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

WD[HV DUH GHWULPHQWDO WR JURZWK 1R JURZWK DO  
WKH JUHDWHU HTXLW\ FDK SD\R~~3~~WV LQ WKH WH[WXU

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

)LJ 3DVV 7KURXJK :HDOWK DQG )HGHUDO 7D[ 5HYHG

7KH ODVW WZR FROXPQV)R5L)MJXUH SULRYHU W&-\$WDQG  
XQGHU 7&-\$ 7KLV LV D IDOO RI RQO\ URXQGLQJ  
FRUSRUDWLRQ UHVXOWV LQ )LJXUH 77KHUH SDVWUH L  
WKURXJKV LV QRW VXEWDQWLDOO\ DIIHFWHG E\ 7&-\$  
HUURU RI ZKHQ VXEWDQWLQJ IURP :  
WKH VPDOOHU IDOO LQ WKH WD[ UDWHV IRU SDVV WK  
7&-\$ EXW DOVR WKH IDFW WKDW SDVV W(KURXJK WD[DE  
VOLJKWO\ JUHDWHU LQFUHDVH FRPSDUHG WR & FRUSR  
WKDW DUH SDVV WKURXJKV FDQ ZH VD\ WKDW WKH HC  
PDNLQJ XS IRU)75L)R5L)RZHUHQ RI WD[ UDWHV X  
)LJXUH FKDUWV & FRUSRUDWLRQ VROLG ILOO FROX  
GLIIHUHQFHV WKDW LQYROYH 7&-\$ YDOXHV PLQXV SU  
GLIIHUHQFHV DUH IURP WKH WZR VHWV RI FROXPQV  
GLIIHUHQFHV DUH IURP WKH WZR VHWV RI FROXPQV LC

---

:KLOH QRW IRUPDOO\ UHSRUWHG WKHUH75L)R5L)RZHUHQ RI WD[ UDWHV X  
H[DPSOH ZKLOH WKH LQYROYH WKURXJKV WKDW SDVV W(KURXJK WD[DE  
ILJXUHV DQG WDEOHV DUCHGLZKHQ DWHHV R HGHVHSIDUDWHO\ FDQ \LH  
LQ)75L)R5L)RZHUHQ RI WD[ UDWHV X3VRZLW73DQLWK Dp5

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

LQGLFDWHV DQ LQFUHDVH FDXVHG E\ 7&-\$ ZKLOH D  
DWWULEXWDEOH WR 7&-\$

)LJ & &RUSRUDWLRQ DQG 3DVV 7KURXJK 'LIIHUHQFH

)LJXUH UHYHDOV WKH IROORZLQJ & FRUSRUDWLRQ U  
ODWWHU LQ)SDVW WKHWHV 6HFRQG LQFUHDVHV  
(%7DQGDUH WKH VDPH DW IRU SDVV WKURXJK

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

UDW~~W~~3 IDOOV 7KH SHUVRQDO WD[ UHY  
SD\RXW LV JUHDWHU IRU SDVV WKURXJKV DV WKH\ SDV

7HQ~~W~~G ~~7~~75~~6~~IVFUHDVHV 7KH WZR IDFWRU  
7)75IRU & FRUSRUDWLRQV DUH WKH GHFUHDVHV LQ FR  
HTXLW\ FDV~~5~~(SD~~5~~5~~5~~VDV WKH WKUHH)R~~5~~DKUHSRR\UWFLHY  
7KH IDFWRU UHVSRQV)Z~~5~~ORU ISDUV WKH GER\$SKVQLV WKH ID  
WD[ UHYHQXH IURP H~~5~~X~~1~~WD VF ~~W~~KKH S B XRX ~~W~~7~~5~~DW W RXUF

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

)LJ & &RUSRUDWLRQ 3DVV 7KURXJK DQG 63HUVRQDC

)LJXUH GLVFORVHV WKH IROORZLQJ ZKHQ ZH FRPSD  
LDVZHOODKUMIZ 7DYHUDJH & FRUSRUDWLRQ DQG SDVV WKUR  
DQG WKH ZHLJKWHG DYHUDJH & FRUSRUDWLRQ DQG 3  
ODWWHU UHVXOWXLDUM LG`SDUMADWEH HVHV





H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

)LJ & &RUSRUDWLRQ 3DVV 7KURXJK DQG 573HUVRQDO

)LJXUH GLVFORVHV WKH IROORZLQJ ZKHQ ZH FRPSDU  
FRUSRUDWLRQV DQG SDVV WKURXJKV ZLWK WKDW EH  
ODWWHU UHVXOWV LQ SDUHQWKHVHV



H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

HTXLW\ SHUVRQDO WDF576FZKLVCH/ WKVXEVWDRQVLD DO IDO  
RFFXUV E HIRUX576L V FRPSXWHG E(%ZEJW CRZHQGLQJ  
WKHQ VXE WUD,FD,WLQJQRXWDDWOD[RGHGXFWRQ EXW VXE M  
ò576 7KLV H[SODQDWLRQ FDQ DOVR KHQSQBFBRXQW IF  
GHVFULE7KGLQGHJLVHV 7KH576FDXVXW D D  
VPDOOHU LQF(UZBVKLQVWKKH FDSLWDO JDLQV FRPSRQ  
WR SHUVRQDO HTXLW\ WD[ \$ 5HDMRQ@BU DTVERDOOHU

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

JUHDWHU SRWHQWZDI MKHUUFUVDWHDGJLQJ RI WKH L  
ZHDOWK 7KLV FUHDWHV D SRWHQWLDO VRXUFH RI 86  
VROYH RWKHU SUREOHPV VXFK DV WKRVH UHODWHG W

7DEOH & &RUSRUDWLRQ 3DVV 7KURXJK DQG 3HUVRO  
YV 7&-\$

	& &I	3D WKU	& &RUS WKU	& &RUS
3DQH0&\$\$ Z,7 PLQX 7&-\$ Z,7				
(%				
1				

| | | |

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

ZKHQ JDXJLQJ WD[SD\HU DQG ZHDOWK DQG IHGHUDO W  
LQ WHUPV RI FRPSDULQJ WKH H[DFW GROODU DPRXQW  
VKLHOGV

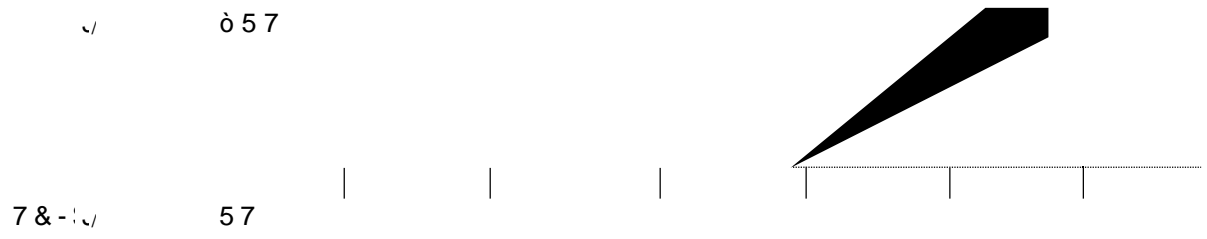
3DQHO \$ RI 7DEOH UHSRUWV UHVXOWV ZKHQ ERWK 7  
DQ76 3DQHO % UHSRUWV UHVXOWV ZKHQ 76 Q&-\$UYD0&-\$V  
YDOXH DUH, 76% RI 0 KR Q HDV RI 7&-\$ UHVXOWV KDYH HQ

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

H[SHQGLWXUH LQ WKH 86 LV WKH H[FOXVLRQ RI HPSO  
SUHPLXPV DQG PHGLFDO FDUH

7KH ILQGLQJV LOOXVWUDWHG LQ )LJXUHV 576QG FDS  
DUH QRW RIIHUG DV WKH RSWLPDO ILQGLQJV DV PRU  
EH VHHQ ODWHU LQ 7DEOH PFK PRU576WDSSDUWXZH  
ZKHUH5000 RVHG DV D WD[ VKLHOG LQV576GRZHUHQH K  
7)75HYHQ PRU576Kdq D ò





H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH





H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

,76R576WD[ ODZ ZLOO VKRRW IRU DQ LQYHVWPHQW  
VSHFXODWLYH JUDGZREDOGEZKILWJHU )RU RXU WHVW







FODVVURRP DV ZHOO DV WKRVH WR KHOS SROLF\ PDN  
VKLHOGV DQG JURZWK LQ \*'3 7KXVH H[HUFLVHV DUH  
FRPPLVVLRQHG WR SURSHUO\ WHDFK WKH UHODWLRQ  
HVSHFLDOO\ WKRVH ,JRYQH QULW DLOM B ,HWWQLXFWLRQ  
H[HUFLVHV DUH DOVR YDOXDEOH WR SUDFWLWLRQHUV  
SROLF\ DSSOLFDWLRQV WR JXLGH WKHP LQ WKHLU GH  
ZLWKRXW XQGXFH WD[ LPSHGLPHQV WKDW PDNH JURZ

)RU D VHFRQG WDVN ZH WDNH LQWR FRQVLGHUDWLRQ  
,Q WKLV UHJDUG IXWXUH UHVHDFK FDQ H[SORUH RW  
KRZ WD[ UDWHV FKDQJH ZLWK OHYHUDJH 7KXVH WHV  
LQFOXGH WD[ UDWV VFHQDULRV EHORZ DQG DERYH W  
DUWLFOH \$GGLWLRQDOO\ WKLV VWXG\ V WHVW DV  
DUJXH E\ +XOO D IRU GHEW IRU HTXLW\ WUDQV  
IRUPXODWHG WR DSWKHRSIURR DQG XQIR\UHVHDFK F  
FRQVLGHU UHSHDWLQJ WKLV DUWLFOH V WHVW ZKH  
OHYHUDJH ,Q RUGHU ZRUGV WKH H[SHFWHG OHYHU  
DQ\ OHYHUDJH FKRLFH LQVWH 29 RIKWCH ZIKZFXOWKO  
H[SHFW DQ\ PDMRU FKDQJHV VLQFH DQ XQOHYHUHG W  
IURP WKH XQOHYHUHG WD[ UDW RQH QHYHU NQRZV  
FRQGXFWHG

)RU D WKLV WDVN IXWXUH UHVHDFK PLJKW FRQVL  
7KLV UHVHDFK FRXOG SRVVLEO\ VKHG 6WKDW RQJVS  
MXVWL\ GHEW DV JURZWK HQKDQFLQJ DW OHDVW IRU  
GHWHUPLQH WKH OLPLWV DQG DGHU ROKER WKK DQ\ WKDV  
&DSLWDO 6WUXFWXUH ORGHO &60 HTXDWLRQV DQ  
SORZEDFN%5E WLRUH GHEW LV XQG WDWKHQ DROGH WRXU  
JURZWK )RU WKH &60%5XV WX DQ JUHDWHU WKDQ WKH  
RQ (IRU JURZWK WR DGG YDOXH DW WKH XQOHYHUHG  
QRW PDNH JURZWK YDOXDEOH LI WKH EXVLQHVV WD[ L  
SRVLWV WKDW GHEW KDV QR SDUW LQ DIIHFWLQJ WKH  
XQOHYHUHG JURZWK DMM DQG EHFRPHV WKKGHYHU  
WKH UHWDLQHG HDUQLQJV LV DOUHDG\ IL[HG WKH  
VKDUHKROGHUV WR WDNH RQ 5(U7KXLWNL QFWHDFKGGJ  
IURP GHEW FRPHV ZLWK D SULFH 6XSSRVH GHEW DQG  
VXSSOLHUV RI IXQGV IRU JURZWK 7KH UROH RI GHEW  
RI FDVK IORZV DYDLODEOH WR WKH ILUP IRU LWV FKRV



H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

DQ LQWHUHVY 76 WDR XCK HQ GVV JLYHQ LW GLVWRUWV V  
GHEW RYHURRTOG W W DV SHJSDH[W@H DWD@UHDWPHQV  
HDUQEQJWKDW LV FRQWUDU\ WR WKH UHVHDFK WKDW  
IXQGV XVHG 5RU JURZWK

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

+XOO 5 D μ\$ FDSLWDO VWUXFWXUH, PRGHOPH&W ZLQWKJWPH  
)LQDQFLDO , QROYDWLRQV SS

+XOO 5 E μ'HEW HTXLW\ GHFLVLRQ PDJHLQJZDYLQZGDIWK  
SS

+XOO 5 μ&DSLWDO VWUXFWXUH PRGHO &60,QY&RUVPHFWL R  
0DQDJPHQW DQG )LQDYRFDLDO , QRYDSLSLRQV

+XOO 5 μ%XVLQHVV ZKHG WKWDLQOVDFRFRPLFVQ/RHWWSISV

+XOO 5 μ&UHGLW UDWLQVWPHQWIDURDYDHPHQW DQGO)LQDQ  
QR SS

+XOO 5 3ULFH ' μ3DVWKHWKUXQKYOYBOKDWLRSQHQHXQRDO  
SS

+XOO 5 9DQ 'DOVHP 6 μ1RQSURILWV DQG ,SDWHUW&WRROK  
-RXUQDO RI )LQDYRFDLDO QWXGLSS

-HQVHQ 0 μ\$JHQF\ FRVWV RI IUHH FDVK\$IFRZLFDQJ (FRUDPHL  
5HYLHZO QR SS

-HQVHQ 0 0HFNOLQJ : μ7KH RU\ RI WKH ILUP 0DQDJHULD  
VWUXFWXUHRI )LQDQFLDO (FRPLSS

-RLQW &RPPLWVHH RQ 7D[DWLRQ -&7 μ2YHUYLHZ RI WKH  
-&; )HEUXDU\  
\$YDLODEOH DW KWWSV ZZZ MFW JRY SXEOLFDWLRQV KWPO"IXQF VWDUWGRZQ

-RLQW &RPPLWVHH RQ 7D[DWLRQ -&7 μ2YHUYLHZ RI WKH  
-&; 0DUFK \$YDLODEOH DW  
KWWSV ZZZ MFW JRY SXEOLFDWLRQV KWPO"IXQF VWDUWGRZQ

.LVJHQ ' μ&UHGLW UDWLQVWPHQWIDURDYDHPHQW DQGO)LQDQ  
QR SS

.QRWW \$ μ:K\ WKH 7D[ &XWV DQG -REV \$FW 7&RUEHV WR  
)HEUXDU\  
\$YDLODEOH DW KWWSV ZZZ IRUEHV FRP VL  
WD[ FXWV DQG MREV DFW WFMD OHG WR EX\EDFNV UDWKH

.RUWHZHJ \$ μ7KH QHWREXHQDQWYRLODQFHJHSS

0DWWKHZV ' μ7KH WD[ ELOO LV D JLDQW SHUPLVVLRQ V  
'HFHPEHU \$YDLODEOH DW KWWSV ZZZ YR[ FRP  
UHSXEOLFDQ WD[ ELOO H[SODLQHG

0F%ULGH : μ&56 DW RGGV ZLWK DFDGHPLF VWXGLHV FF  
HDUQHUV WD[ )RUEHVWRROKPEHU \$YDLODEOH DW KWWSV  
RGGV DFDGHPLF VWXGLHV FRQWLQXHV FODLP QR KDUP UD

0HUWHQV . 5DYQ 0 μ7KH G\QDPLF HIIHFWV RI SHUVRQDQ  
8QLWHG \$FWHUV (FRQYRLO 5HYLHZ SS

0LOOHU 0 μ'H-ERXUDQDQWRD YRLODQFHJHSS

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

ORGLJOLDQL ) 0LOOHU 0 μ&RUSRUDWH LQFRPH WD[HV  
\$PHULFDQ (FRQRPL 5HYQRZ SS

0\HUV 6 μ'HWHUPLQDQWV- RXFRDWRU DWDEWURDZ (FRQRPL  
SS

0\HUV 6 0DMOXI 1 μ&RUSRUDWH ILQDQFLQJ DQG LQY  
LQIRUPDWLRQ WKDW LQYHQVWRV )LQFRPH (FRQRPLSS

1RNHG 1 μ,QWHJUDWHG WD[ SROLF\ DSSURDFK WR GHVLJ  
9LUJLQLD 7DYR 5YHLHZR SS

1RUEIFN 3 - 3HUVVRQ / 7nJ - μ'RHV WKH GHEW WD[ V  
,QWHUQDWLRQDO 5HYLHZ RYRORQRWDFW (SS)LQDQFH

1XVVLP - 6RUHN \$ μ7KHRUL]LQJ9WDJLQDHTDYR 5YHLHZU L

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

:LOVRQ 5RJHUV 1 3LQWR ' μ7D[ UHIRUP \$ PDWWHU RI S  
WKH UHYLHZ RI \$~~H~~VRXUQDOLOQIWD[~~ROH~~VHDFK SS

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

\$33(1',; (48\$7,216 86(' 72 \*(1(5\$7( 7\$; /\$: 287&20(6

7KH &DSLWDO 6WUXFWXUH 0RGHO &60 RI +XOO  
 OHYHJDHTXDWLRQV IURP\*WKFXGOMOLHYHRIHBLKDW YDC  
 XQOHYHUHG9LZRSLDQXWKH VDPH DV XQO8FYKJHGHHTXI  
 \*, HTXDWLRQV LQFOXGH QRQ JURZWK DQG JURZWK HT  
 WKURXJKV 7KH\ DOVR FRQWDLQ HTXDWLRQV IRU WD[  
 \,76 DQG D UHWDLQHG576U%HLVJWD[WKHLHODGWWHU WD[  
 FDOOLKODD WD[ VKLHOG D SDUWLDO WD[ VKLHOG

WKH SUR\$RUWWWRQHRG ZLWK GHEW ZD,WKGMHQWPKLLJHGHVDW  
9/

7KHUH DUH 3 ISRRVLEHVDHWKDW FRUUHVSRQG WR WKH  
\$SSHQGL[ \LHOG\$YDQX\$WZK\$HJ\$H7KPD\$, LV IRXQG IURP  
DPRQJ DOQ MDDXLHEVZKHUH IHDVLEOH UHIHUV WR WHVY  
WKH FRQVWUDLQWV JLYHQ[9EGH\$WQOPLQH\$ MKRLRHSWLP  
IURP ZKLFK WKH RSWLPDO2GHEVDQWRHIFURP\$XWQ\$E U\$HWL  
9/ (8 PD[ / ERVQK / DQD\$, LGHQWLI\

3ORWQWYDQXHV3DFJRLQFHW \LHOGV D FRQFDYH3VKDSH  
FKRL\$HYDOXHV URLV\$H IEV IURHDFKPD\$, IZQDFH KQLYDQGHV  
IDOO\$FKVRLFHV LQFUHDVH 7KHUH LV BQW\$H\$V\$W\$SRVL\$BQ3W  
ZKHQHLQFUHDVHV PVDL\$K\$W\$Q\$D\$F\$M\$H\$G\$D\$V\$X\$W\$WK\$D\$W\$W\$H\$V\$W\$  
DQ XQVXW\$W\$DILQDE\$DQ\$G\$VR\$LV\$FRQVLGHUHG XQIHVLEO  
FRQVWUDLQWV RQPD[WDW\$H\$V\$S\$K\$F\$D\$D\$E\$D\$E\$B\$E\$D\$D\$W\$K\$D\$  
WD[ UHYHQXH RXWFRPHV JLYHQ LQ )LJXUHV DQG 7D

\$33(1',; ) ,9(67(3 352&('85( 72 &20387( %2552:,1\* &2676

:H FRPSXWH ERUURZLQJ FRVWV IRU GHEW DQG HTXLWY  
6WHS\$H\$W\$D\$ORQJ\$W\$H\$J\$R\$I\$U\$L\$V\$N\$G\$M\$X\$W\$W\$D\$Q\$W\$H\$R\$U\$W\$K\$H\$G\$R\$  
D\$U\$D\$W\$H\$R\$I\$LV\$FRQVLV\$W\$H\$Q\$W\$Z\$L\$W\$K\$ \H\$D\$U\$J\$R\$Y\$H\$U\$Q\$P\$H\$  
\H\$D\$U\$V\$D\$V\$J\$L\$Y\$H\$Q\$E\ )HGHUDO 5HVHUYH (FRQRPLF 'DWD  
6WHS\$H\$H\$W\$D\$Q\$HTXLW(\$5\$B\$L\$X\$W\$L\$S\$W\$H\$D\$Q\$X\$P\$V\$W\$L\$P\$D\$W\$H\$R\$I



H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

ILUWUJ ILUVW VSUHDG

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

DOG 7KH ZHLJKW&5G VDYHUDJH  
6LQFH WKJ&5W RDUHDFK RI WKH WKUHH F  
FRPSXWH ZHLJ&5WIG DYHUDJH

H-RXUQDO RI 7D[ 5HVHDFK

\$ WD[ SROLF\ WKDW VKLHOGV UH

YDOXPHD)V)RU DOO RI RXU QRQ JURZWK WHVW WKUW  
3 FKRLFH WKDW FRUUVSRQGV WR D ORRG\TV FUHGLW  
FRPPRQ FUHGLW UDWLQJ )RU H[DPSOH IURP -XQ  
ORUQLQJVWDU UHSRUWV WKDW QHDUO\ RI DOC  
LQYHVWPHQW JUDGH ,\* FUHGLW UDWLQJ RI \$ HYHQV  
WR FKRRVH IURP )XUWKHUPRUH RI WKH QHZO\ U  
,\* FUHGLW UDWLQJ WHVW WKDQ RQH ILIWK RI WKH UDWLQ  
QRQ ,\* UDWLQJV

6WH\$URP RXU QRQ JURZWK WHVW ZH LGHQWLI\ \$ DV

6W HSH FRPSXWH WKH ILYH WD[DEOH DPRXQWV RQ ZKL  
DUH SDLG 7KH\ FRQVLVW RI WKH IROORZLQJ DPRXQW  
DPRXQW

\*5( IRU6WD[ ODZ FRU6WD[ ODZ (SBUJLSDU576WD[ ODZ  
FRUSRUDWH WDRG VWSKDLG(SRUWD[DEOH LQFRPH WKDW  
JDLQ V ZLW,76RQ LQ,WZUWKT6RQ ERVQZGLWK D SDUWL  
576

\*3 (% , 7 5( IRU6WD[ ODZ (%U7 , IRU6WD[ ODZ RU  
(% , 7 5(SDUWLDORISDUWLDWD[576DZ FRUSRUDWEGWDPHW S  
SRUW(LRQWRDW LV GLVWULEXWHG DV DQ HTXLW\ FDV

, SHUVRQDO WDWZLW576RQDO )32V DQG IRU SDVV  
373 WHVW576ISW6RQDO WD,7W DUH SDLG RQ

\*5( SHUVRQDO WDRQ FSDSLGW D W7(JDLVQ VUZKHWHU IRU S  
WKURXJKV DQG

\*3 > 7& (% , 7, @±5( IRU6WD[ QDZ>RU& (% , 75( ±,@±  
5( IRU6WD[ QDZ>RU& (% , 75(SDUWLD@±5( IRSDUWLDWD[576  
ODZ SHUVRQDO WDRQ[HTXS D LG DWK \$DRYWDZKHUHRU S  
WKURXJKV DQGU SDVV WKURXJK DQG 373 WHVWV

L

7KH ILUVW WZR WD[DEOH DPRXQWV DUH DSSOLFDEOH  
IRU SDVV WKURXJK DQG 373 WHVWV 7KH ODVW WZR D  
KDYH ORZHU SHUVRQDO WD[ UDWHV DV GLVFXVVHG L  
LQFRPH FDQ EH WD[HG PRUH WKDQ RQFH )RU H[DPSON  
ZKHUH HDUQLQJV DUH WD[HG DW ERWK FRUSRUDWH D  
KD6H R,USD[HG PRUH WKDQ RQFH GHSHQGLQJ RQ WKH  
SDU50LDO 3DVV WKURXJK DQGDW DZHQH6RQSDRQ  
WKURXJKV DUH, WDRG RQZLS6RQSSDUW76ORQ

6W HSH RWLQJ WKDW WKH ILYH WD[DEOH DPRXQWV RQ Z  
DUH SDLG UWBWHDVWD[ WDRG LYLQGRPHDFK RI WKHVH ILY  
E\ WKRWDW WD[WDRH WQWRPHILYH ZHLJKWV

6W HSH PXOWLSO\ WKHVH ZHLJKWV E\ WKHLU UHVSHFW  
WKUHVH VXà,,vR` G` 'TMWP WKH` @0



H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDURQFHGH V







H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDURQFHGH V

%RWK DXWKRUV FODVVL\ HDUPDUNHG WD[HV DORQ



H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDUUHQFHGH V

IRU \HDUV WR FRPH HYHQ LQ WKH DEVHQFH RI D VWUL  
DQG LQVWLWXWLRQDO UHDVRQV

7KLUGO\ LQ FRXQWULHV ZKHUH WD[ FRPSOLDQFH LV  
HDUPDUNHG WD[HV FDQ KHOS FKDQJH WKLV SHUFHSW  
WKDW WKH WD[ FROOHFWHG ZLOO EH VSHQW IRU SOH  
WKH FRPPXQLW\ ZLOO ~~SD\~~ LWKHODWYMD\HWDVLHU IRU  
FRUHHODWH FROOHFWLRQ DQG H[SHQGLWXUH ZKHQ W  
EHQHILF ~~W~~LVHV^ 1^ 1^ 1 0W



(DUPDUNLQJ KDV QRW DYRLGHG WKH QHHG IRU DGGLW  
WKH SULPDU\ HGXFDWLRQ FHVV QRZ PRGIBHG QRWWK  
SUHYHQW WKH QHHG IRU EXGJHWDU\ DOORFDWLRQV IR  
:KHQ JRYHUQPHQWV FKRRVH VXFK EURDG DQG JHQHU  
KDSSHQ 7KLV JLYHV WKH LPSUHVVLQR WKDW WKH HDU  
D SUR[\ IRU SXVKLQJ WKH DJHQGD IRU FHUWDLQ FKR

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7KH SRZHU WR WD[ LV DQ LQKHUHQW DWWULEXWH RI  
KDV WKH SUHURJDWLYH WR FKRRVH WKH FODVV RI SH  
,Q WKH FDUH RI D FHVV WD[ WKH VRYHUHLJQ DOVR KD  
SXUSRUHW `1U WRYH (

+RZHYHU DV D WD[ FDQ RQO\ EH EURXJWWHLQ DVZKRXW  
EH YDOLG LQ WKH H\HV RI WKH ODZ (YHU\ WD[ ODZ  
FRPSHWQH RI WKH UHOGRWQHWH OHLRLODMDWYH RI DQ\ I  
FRQWDLQHG LQ 3DUW ,D,QRI WKR &RQVHWL[SXWLRQ\ SUR  
RWKHU WD[ VSHFLILF DUWLFDO DWJDOWKHO&BQWWRWXWKI  
QRZ EH WHVWHG RQ WKHVH JURXQGV

\$V DQ LQLWLDO SRLQW LW FDQ EH QRWHG WKDW PDQ  
WD[SD\HUV¶ FLWL]HQV¶ FKDUWHUV WKDW UHFRJQLVH V  
FKDUWHUV JXDUDQWHH WD[SD\HUV¶ ULJKWV VXFK DV V  
ULJKW WR DSSHDO ULJKW WR FHUWDLQW\ HWF 7KH  
%RDUG RI 'LUHFW 7D[HV KDV LVVXHG D WD[SD\HUV¶ FH  
HQXPHUDWHG LQFOXGH WKH ULJKW WR D IDLU DQG M)  
WR SURYLGH FRPSOHWH DQG DFFXWLVHWHQV¶ IRKPDWHRQ  
DSH[ LQGLUHFV WD[ GHSDUWPHQW LQ ,QGLD GRHV QI  
WD[SD\HUV 1HYHUWKHOHV WKH GHSDUWPHQW FRP  
WUDQVSDUHQV¶

H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDUDQFDFHG V

(LJKWLHWK &RQVWLWXWLRQ \$PHQGPHQW \$FW ( (L  
6XSUHPH &RXUWTV LQWHUSUHWDWLRQ GHPRQVWUDWH  
DGPLQLVWUDWLQHWKHSDEW#QFH RI D FRQVWLWXWLRQ  
)LQDQFH &RPRIDWHLRQVHDWHG FHVV WD[HV DV D VHSDU  
PHDQW WR EH VKDUHG ZLWK 6WDWH JRYHUQPHQWV  
&RPPLVVLRQ RSLQHG WKDW VKDULQJ SURFHGGV ZLWK  
DV D SXUSRVH KDG DOUHDG DMMQHWKFDLQMIQ  
DQG 6HUYLEFHV 7D[ \*67

H-RXUQDO RI 7D[ 5HVHDFK

(DUPDUNHG

H-RXUQDO RI 7D[ 5HVHDFK

(DUPDUNHG



H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDUDQFHGH V











H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDUDQFHGH V

H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDUDQFHHG V

7KH FHV V LQ TXHVWLRQ KDV EHHQ GHWHUPLQHG WR  
FRPPRQ IHDWXUH EHWZHHQ D FHV EHDULQJ WKH FKD  
WKH SURFHGGV RXJKW WR EH XWLOLVHG IRU D VSHF  
UHVSRQVH LV ZDUUDQWHG HYHQ IRU QRQ XWLOLVDWL

2Q WKH RWKHU KDQG WKH .DUQDWDND +LJK &RXUW K  
LQ WKH QDWXUH RI D WD[ PD\ EH XVHG IRU DQ\ SXE  
SXUSRVH DV LW LV SDUW RI WKH &RQRQ DQ &DWRQ L)X  
WKH VSLULW RI D FHV WDLVSHDFWVHJLW UDWKHU OL

7KH .HUDOD +LJK &RXUW KDV KHOG WKDW ZKHQ FRQV  
FHV VWDWXWH LW ZRXOG EH μLQDSSURSULDWH DQG  
WKH DSSOLFDWLRQ RI SURFHGGV FROOHFWHG XQGHU  
WKH &RQVWLWXWLRQ



H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDUUHQFHGH V

LW D ULJKW %\ FRQWUDVW LQ WKH FDVH RI JHQHUDO  
FDU LQ WKH VSRW DQG QR RQH EHDUV D FRUUHODWLY

\$SSO\LQJ WKH ULJKWV EDVHG DQDO\VLV WR HDUPDUN  
LQGLYLGXDO DQG RU FROOHFWLYH ULJKWV DULVLQJ IU  
LGHQWLI\ WKH ULJKWV RI FHVV WD[SD\HUV DQG FRUR  
HDUPDUNHG WD[HV DUH OHYLHG IRU  $\mu$ VSHFLILF SXUSR  
FHVV WD[SD\HUV ZRXOG KDYH D ULJKW WR VHHN XWLO

H-RXUQDO RI 7D[ 5HVHDFK

WD[HV DQ ,QDUDQFDFHG V

HVWLPDWHG UHYHUVH FDOFXODWLRQV WR VXEVWDQV  
 HQVXULQJ HDUPDUNLQJ DQG XWLOLVDWLRQ DQG D  
 FROOHFWLRQ DQG H[SHQGLWXUH GDWD DQG VXQVHW F  
 ,Q RUGHU WR HQVXUH HIIHFWLYH HDUPDUNLQJ DQG  
 PDFKLQHU\ DQG RIILFHUV PXVW EH LGHQWLILHG VHS  
 WKH &RQVROLGDWHG )XQG RI ,QGLD DQG HDFK RI V  
 DFFRXQWLQJ FRGHV VR WKDW WKH XVDJH RI IXQGV FD  
 VWULFW FRPSOLDQFH ZLWK WKH HDUPDUNHG WD[LQJ  
 QHFHVVDU\ DSSURSULDWLRQ \$FWV DQG DGPLQLVWH  
 SURFHGGV LQ D WUDQVSDUHQW DQG WLPHO\ PDQQHU  
 LQ FDVH LW LV QRW DEOH WR IXOILQ LWV GXWLHV ,W

([SHQGLWXUH RI +\JLHQH &HV

DQG

1DPH RI WKH 6WD			DV RQ
\$QGDPDQ			
\$QGKUD 3UDGHVK			
\$UXQDFKD			
\$VV			
%L			
&KKDW			
*R			
*XMI			
+DU\			
+LPDFIDGI			
-DPPX .D			

-KDUN



H-RXUQDO RI 7D[ 5HVHDFK YRO QR SS

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

,1752'8&7,21

3URSHUW\ YDOXHV DQG WD[DWLQRQ KDYH LQWHUDFWH  
RYHU WKH ODVW WKUHH GHFDGHV LQ \$XVWUDOLD 7K  
DUJXPHQWV WKDW DOORZDQFHV DQG H[HPSWLRQV W  
FRQWULEXWH WR GLVWRUWLQJ KRXLQJ LQYHVWPHQ  
SRVLWLRQ WKDW SURSHUW\ WD[ PHFKDQLVPV DUH GXF  
WKH H[HPSWLRQV RIIHUG E\ \$XVWUDOLD¶V 6WDWH V  
RI ODQG WD[ DQG LQ WXUQ LQIOXHQFH LQYHVWPHQW

\$V RI \$XVWUDOLD¶V KRXLQJ DVVHWV ZHUH YDOX  
UHSUHVHQWLQJ D GHFOLQH RI \$8' ELOOLRQ RYHU  
%XUHDX RI 6WDWLVLV \$%6 :KLOH VXFK GHF  
FDXVHG WR D ODUJH H[WHQW E\ \$XVWUDOLD¶V VWURQ

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

:KLOH WKHUH PD\ EH μFRQVHQVXV WKDW D FRRUGLQDW  
RI KRXLQJ LQ WKH WD[ V\VWHP FDQ PDNH D VLJQLILF  
RXWFRPHV¶ (FFOHVWRQ HW DO S HDFK WLH  
UHIRUP 7KH DELOLW\ WR GHGXFW D WD[ LPSRVHG E\

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG



H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWRQV WR UHVLGHQWLDO ODQG

\$V GHPDQG VLGH VXEVLGLHV WKDW FUHDWH DO  
LQFUHDVLRQJ FRQVXPSWLRQ RI KRXLQJ WKURXJK  
WR SULFH SUHVXUHV LQ WKH KRXLQJ PDUNHW  
DIIRUGDELOLW\ FRQVWUDLQWV IDFHG E\ DVSLULQ

6WDWH DQG ORFDO JRYHUQPHQW

(FFOHVWRQ HW DO S UHIHUHQFHV RPLWWHG

>L@Q \$XVWUDOLD WKHUH DUH FXUUHQWO\ WKUH  
UHVLGHQWLDO SURSHUW\ WUDQVIHU GXWLHV VW  
7KHVH WD[HV WRJHWKHU UDLVHG RYHU ELOOL  
FHQW RI DOO WD[HV FROOHFWHG LQ \$XVWUDOLD  
IRU VWDWH DQG ORFDO JRYHUQPHQWV ZLWK WUD  
ELOOLRQ LQ RU DOPRVW KDOI RI DOO SURS

'HVSLWH WKHLU UHYHQXH VLJQLILFDQFH KRZHYH

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWRQV WR UHVLGHQWDO ODQG

1HZ 6RXWK :DOHV LQLWLDOO\ LQWURGXFHG ODQG WD  
ZD\ IRU WKH &RPPRQZHDOWK DQG ORFDO JRYHUQPHQW  
WD[ LQ IROORZLQJ WKH &RPPRQZHDOWK V DEROL  
:DOHV ZDV WKH ILUVW 6WDWH WR LQWURGXFH D ODQG  
LQ %\ WKH WD[ IUHH WKUHVKROG ZDV  
RI 7KH LQLWLDO UDWRQDOH IRU LQWURGXFHQJ W  
ODQJLRQL DV EHLQJ WR LQFHQWLYLVH UHVLGHQW  
HQFRXUDJLQJ PRUH UHQWDO KRXVLQJ VWRFN %\ WKH  
SUHVXUH WR LQFUHDVH WKH ODQG WD[ WKUHVKROG  
LQ LQ DQG LQ ZKHUH WKH WK  
DGMXVPHQW IRU HLJKW \HDUV

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

SURSRVHG UHIRUP WR EURDGHQ WKH ODQG WD[ QHW Z  
LQYHVWRU WD[ IUHH WKUHVKROG ,Q FRQWUDVW WR W  
WKH UHVHDFK XQGHUWDNHQ LQ WKLV DUWLFOH DLPV  
RXW WKH WD[ IUHH WKUHVKROG LQ 1HZ 6RXWK :DOH  
REHFWLYH RI WKLV DUWLFOH WR PRGHO WKH SKDV  
H[DPLQH WKH UHVLVWDQFH WR WKH SD\PHQW RI ODQG  
FRPSRQH QW DV VHW RXW LQ 7DEOH 7KH YDOXH LV  
UHYHQXH LQFUHDVHV HDFK \H DU DQG PRUH UHOHY  
FRPSRQH QW RI WKH WD[ WKDW LQYHVWRUV DUH DEOH  
,Q 0D\ WKH 1HZ 6RXWK :DOHV \*RYHUQPHQW DQQRX  
WD[ IUHH WKUHVKROG LQ 1HZ 6RXWK :DOHV IURP WKH

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

H-RXUQDO RI 7D[ 5HVHDFK

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

DQG WKXV LQFXUULQJ ODQG WD[ LV WKH SULPDU\ UH  
YDOXH

:H QRZ H[DPLQH ZKHWKHU IDFWRUV RWKHU WKDQ WK  
REMHFWLRQV WR ODQG YDOXH WR EHWWHU GHILQH  
LQFOXGH DOO UHVLGHQWLDO LQYHVWPHQW SURSHUV  
REMHFWLRQV WR ODQG YDOXH LQ WKH ODQG WD[  
XQGHUWDNHQ D FORVHU DQDO\VLV RQ DQ /\*\$ E\ /\*\$ E  
IRU KRXXHV DQG XQLWV IRU HDFK /\*\$ DV VHW RXW LQ  
WKH ODQG WD[ IUHH WKUHVKROG LQ )LJXUH ,Q W  
5DQGZLFN %RWDQ\ DQG :DYHUOH\ LQ 6\GQH\ (DVW  
0DUULFN\LOOH LQ WKH ,QQHU :HVW VKRZ WKH ODUJH  
7DEOH DQG )LJXUH ,Q HDFK RI WKHVH /\*\$V WKH OD  
IUHH WKUHVKROG DQG KLJKOLJKW WKDW WKH LQFUHD  
ODQG WD[ DVVHVWPHQW LPSDFWV REMHFWLRQV WR YD  
KDYH EHHQ DERYH WKH WD[ IUHH WKUHVKROG DFURVV  
RI REMHFWLRQV ORGJHG WR ODQG YDOXH IRU KRXXHV

,Q WKH UHYLHZ RI XQLWV LQ ZKLFK WKH WRWDO QXP  
ORGJHG DJDLQVW KRXXHV ODQG YDOXH 7DEOH VKRZ  
DUH LQ 5DQGZLFN %XUZRG \$VKILHOG DQG 0DUULFN  
/\*\$V WKDW KDYH WKH KLJKHVW LQFUHDVHV LQ UHQWHD  
ODQG YDOXH IRU XQLWV LV EHORZ WKH WD[ IUHH WKU  
,W LV QRWHG WKDW LQ 5DQGZLFN DQG 0DUULFN\LOOH  
DQG RI WKH WD[ IUHH WKUHVKROG \$W WKH PH  
DOPRVW WZR XQLWV LQ 5DQGZLFN DQG WKUHH XQLWV  
IUHH WKUHVKROG LQ RI :KLOH SD\PHQW RI  
REMHFWLRQV WR ODQG YDOXH IRU XQLWV WKH UHO  
RQH RI WKH SULPDU\ IDFWRUV GULYLQJ ðXHVV LRUV GU



H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

H-RXUQDO RI 7D[ 5HVHDFK

H-RXUQDO RI 7D[ 5HVHDFK

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

H-RXUQDO RI 7D[ 5HVHDFK \$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

<DWHV - μ7D[ H[SHQGLWXUHV DQG KRXLQJ] \$XWUDOL  
UHVHDFK SDSHU 6HSWHPEHU

<DWHV - μ7D[ H[SHQGLWXUHV DQG KRXLQJ] \$XWUDOL  
6HULHV 1R \$XWUDOLDQ 7D[ 5HVHDFK )RXQGDWLRQ 6\

<DWHV - μ7UHQGV LQ KRPH RZQHUVKLS &DXVHV FRQVH  
+RXVH RI 5HSUHVHQWDWLYHV 6WDQGLQJ &RPPLWWHH RQ (  
-XQH \$YDLODEOH DW  
KWWSV ZZZ DSK JRY DX 3DUOLDPHQWU\B%XVLQHVV &RPP  
KLS 6XEPLVVLRQV

<DWHV - %UDGEXU\ % μ+RPH RZQHUVKLS DV D FUXPEO  
\$XWUDOLDQ RI +RXVLQJ DQG WRPH %XLRW (QSSURQPHQW

\$33(1',; 7\$%/(6 \$1' \*5\$3+6 6833257,1\* 7+( \$1\$/<6(6 \$1' ),1',1\*6

7DEOH &KDQJH LQ 5HVLGHQWLDO 5HQWDO 3URSHU\ EHWZH

	&HQVXV			&HQVXV			FKDQJH&KDQJH		
	\$	%	&	'	(	)	&KDQJH+RXVHV	UHQWHG	
/*\$	+RXVHV						8QLW 7 KRXVHV	GZHOOLQJ	
	7 KRXVHV	&QLWV							

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

)LJV \$QQXDO 2EMHFWLRQV WR +RXVH DQG 8QLW  
7D[ <HDUV



7DEOH 3HUFHQWDJH RI 2EMHFWLRQV WR +RXVHV \$ERYH YHU

8QLW	\$VKI	%RW	DQ\			1WK			
\$ERYH		%I	%ZR	/HLFK	0DUU	6\GC	5DQG	:DYHI	:RROC

H-RXUQDO RI 7D[ 5HVHDFK \$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

)LJ 3HUFHQWDJH RI 2EMHFWLRQV WR +RXVHV \$ERYH

7DEOH 3HUFHQWDJH RI 2EMHFWLRQV WR 8QLWV \$ERYH YHUV

8QLW\$WKI %RWDQ\  
%I %XUZ

H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

)LJ 3HUFHQWDJH RI 2EMHFWLRQV WR 8QLW /DQG 9  
7KUHVKROGV

7DEOH &KDQJH LQ 0HGLDQ /DQG 9DOXH V IRU +RXVH DQG 8QLW  
<HDU \$8'

/*\$  ORVF	0HGLDQ /9 +RXVH 7D[ <U	0HGLDQ +RXVH 7D[ <U	'QFU ,9DOXH <U	0HGLDQ /9 8QLW 7D[ <U	0HGLDQ 8QLWV 7D[ <U	'QFU ,9DOXH <U	&KDQJH 16: LQ UHQWDHGG 7D[ GZHOOLQJHH 7KUHVKROGV
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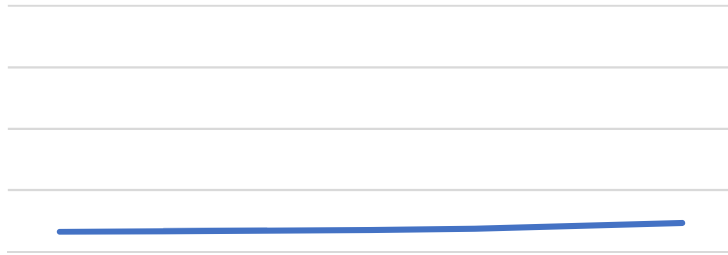


H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

)LJ 0HGLDQ /DQG 9DOXHV IRU +RXVHV DQG 8QLWV  
/\*\$ \$8'

D 0RVPDQ



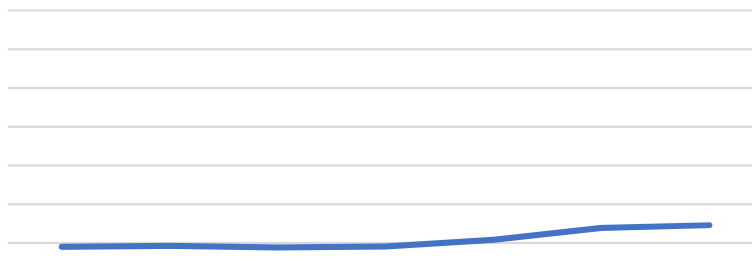
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H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

H 5DQGZLFN

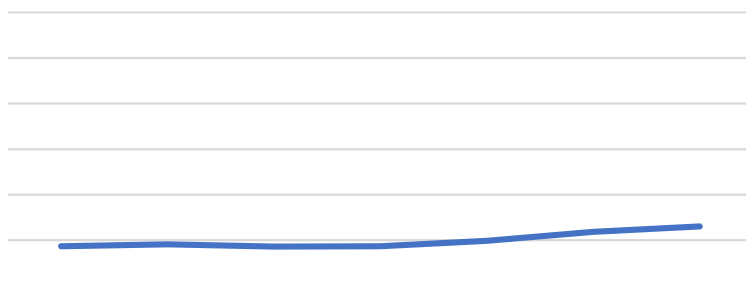


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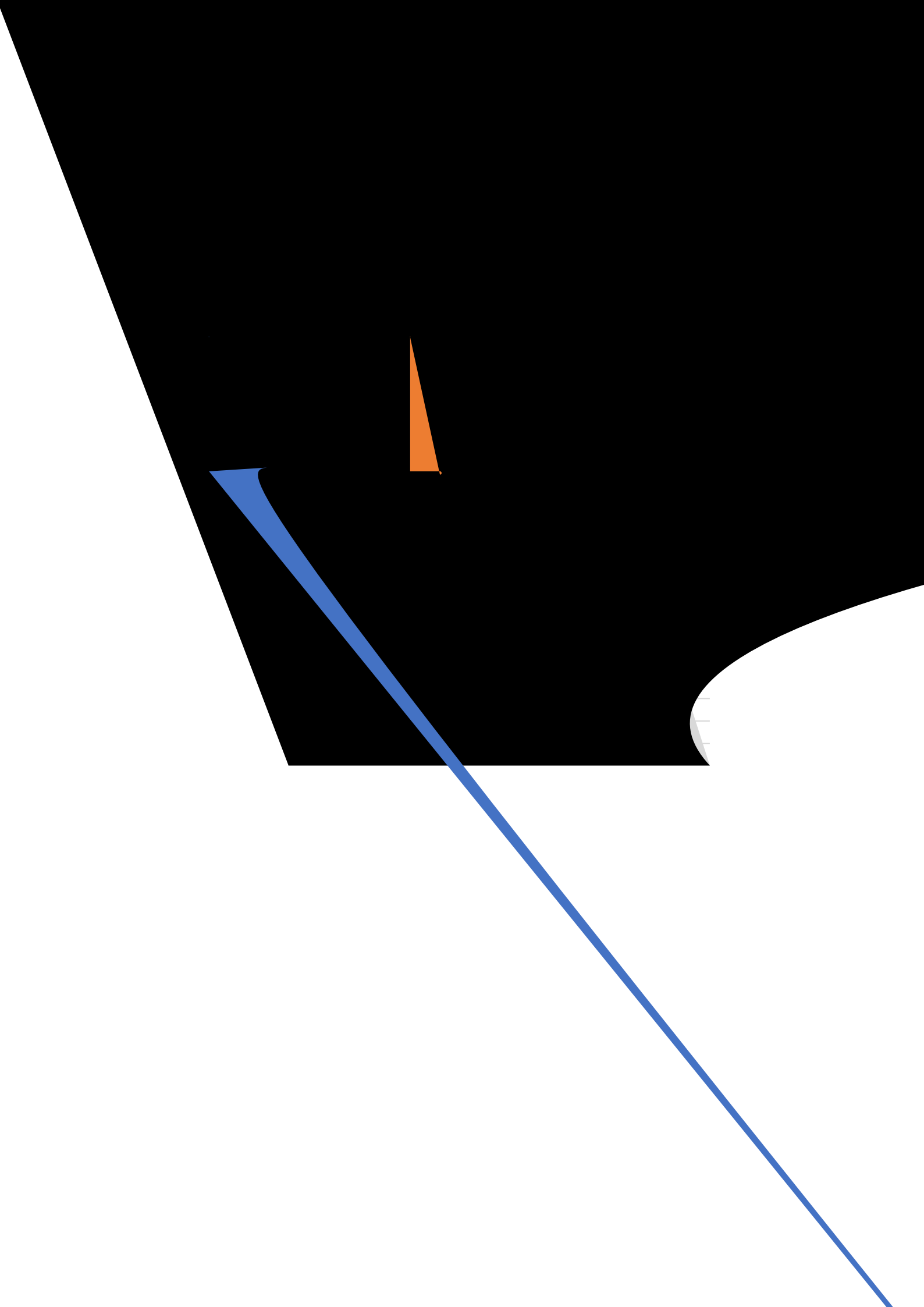
H-RXUQDO RI 7D[ 5HVHDFK

\$ UHYLHZ RI REMHFWLRQV WR UHVLGHQWLDO ODQG

J /HLFKKDUGW



K \$VKILHOG











WD[DEOH LQFRPH 3ULRU VWXGLHV \*UXEHU 5DXK  
.LQQH\ 6ZDQVRQ 0LOOV 1HZEHUU\ 1RYDFN  
KLJKOLJKWHG WKH OLPLWDWLRQV RI XVLQJ &RPSXVW  
OLPLWDWLRQV PDLQO\ DULVH IURP WKH IDFW WKDW IL  
DORQJ PDQ\ GLPHQVLRQV \$GGLWLRQDOO\ EHFDXVH &  
FRPSDQLHV WKH VDP SOH WKL V DUWLFOH XVHV LV QR  
VHFWRU \$OWKRXXJK WKHUH LV VRPH HYLGHQFH WKDW  
VWDWHPHQWV LV D JRRG SUR[\ IRU D ILUP¶V DFWXDO  
3OHVNR WKH OLPLWDWLRQV RI &RPSXV  
ZKHQ LQWHUSUHWLQJ WKH ILQGLQJV RI WKL V DUWLFO  
7KH DUWLFOH WKHQ XVHV D FRPELQDWLRQ RI JUDSKL  
H[SOLFLW VWDWLVWLFDO SURFHGXUHV 5' YDOLGLW\  
EHKDYLRXU DURXQG NLQNV LQ WKH WD[ FRGH LPSOLHC  
DGYDQWDJH RI XVLQJ WKHVH HVWLPDWLRQ WHFKQLTX  
WD[DEOH LQFRPH WR DQDO\ VH WKH UHVSQRVHV WR F  
7KH UHVXOWV VXJJHVW WKDW ILUPV UHVSRRG WR WKH  
VLGH RI WKH EUDFNHW WKUHVKROG 6SHFLILFDOO\ W  
DQ LQFUHDVH LQ WD[ UDW E\ EXQFKLQJ DURXQG WKH  
GHFOLQH LQ WD[ UDWHV LV DVVRFLDWHG ZLWK JDSV R  
VXJJHVW WKDW ILUPV PDQLSXODWH WKHLU WD[DEOH L  
7KH DUWLFOH SURFHGGV DV IROORZV 6HFWLRQ SURY  
LQFRPH WD[ FRGH 6HFWLRQ GLVFXVVHV WKH HVWLPD  
WKH GDWD DQG UHSRUWV VXPPDU\ VWDWLVWLFV 6HF  
FRQFOXGHV

H-RXUQDO RI 7D[ 5HVHDFK

H-RXUQDO RI 7D[ 5HVHDFK

)LUPV¶ VWUDWHJLF UHVSQRVHV V

(67,0\$7,21 675\$7(\*<

7KLV VWXG\ XVHV JUDSKLFDO WHFKQLTXHV KLVWRJ  
SURFHGXUHV 0F&UDU\¶V GHQVLW\ WHVW WR WHVW  
DURXQG NLQNV LQ WKH WD[ FRGH 8VLQJ D FRPELQD  
H[DPLQHV WKH GLVWULEXWLRQ RI WD[DEOH LQFRPH D  
WD[ VFKHGXOHV RYHU WKH VWXG\ SHULRG ,Q WKH KI  
ZLOO EH LQGLFDWHG E\ WKH GLIIHUHQFHV LQ WKH GH

7KH VWDWLWLFDO WHVWV HPSOR\HG LQ WKLW VWXG  
GHYHORSHG LQ WKH 5HJUHVVLRQ 'LVFRQWLQXLW\  
GLVFRQWLQXLWLHV LQ WKH OLNHOLKRRG RI WUHDWPH  
DOVR UHIHUUHG WR DV WKH DVVLJQPHQW RU UXQQLO  
RII SRLQW RU WKUHVKROG IRU WKH DVVLJQPHQW YDU



H-RXUQDO RI 7D[ 5HVHDFK

)LUPV¶ VWUDWHJLF UHVSQRVHV V

SHULRG \$GGLWLRQDOO\ WKH VWXG\ H[FOXGHV ILQDG  
XWLOLWLHV 6,& FRGHV ± DQG ILUPV WKDW DU  
WKH\ DUH VXEMHFWHG WR GLIIHUHQW WD[ UXOHV DQG



H-RXUQDO RI 7D[ 5HVHDFK

)LUPV¶ VWUDWHJLF UHVSQRVHV V

7DEOH 'HVFULSWLYH 6WDWLWVWLFV

7DEOH D 'HVFULSWLYH 6WDWLWVWLFV IRU 75\$ \$QDO\VL

7DEOH E 'HVFULSWLYH 6WDWLWVWLFV IRU \$QDO\VLV RI

1RWH S UHIHUV WR PHGLDQ S LV WKH WK SHUFHQ

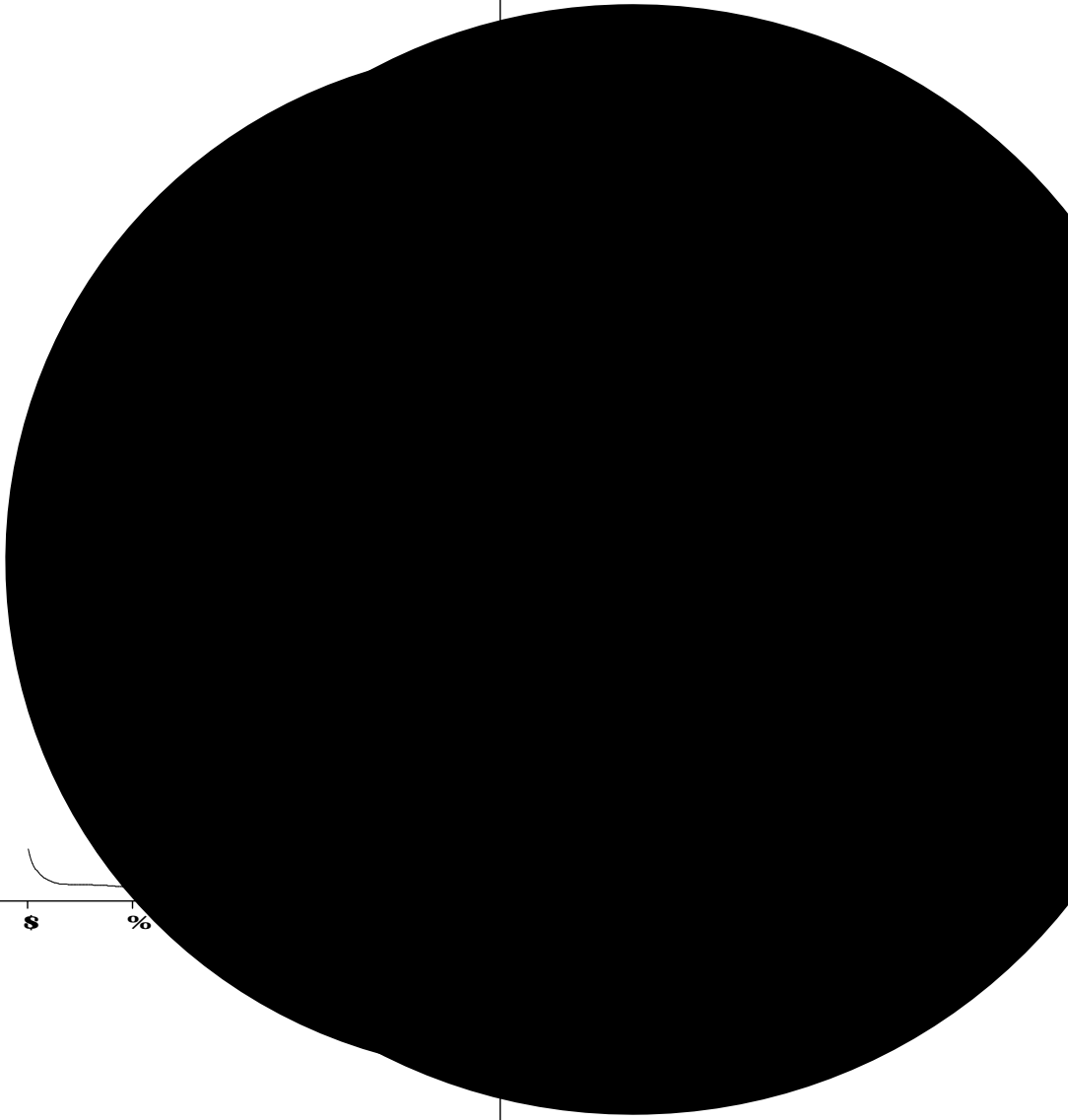
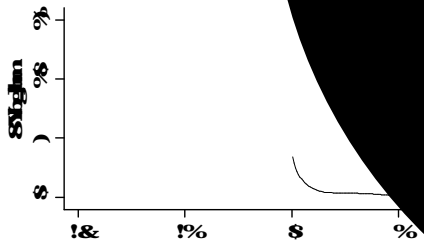
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UHIRUP 2%5\$ 5HVXOWV VKRZ WKDW WKH PHDQ WD[  
PHDQ DVVHWV VWRRG DW 86' PLOOLRQ 7KH DQDO  
LQFRPH LV 86' PLOOLRQ ZKLFK SODFHV PRVW RI WK  
EUDFNHW RI 86' WR PLOOLRQ 7DEOH FROX

H-RXUQDO RI 7D[ 5HVHDFK









H-RXUQDO RI 7D[ 5HVHDFK

)LUPV¶ VWUDWHJLF UHVSQRVHV V

7KH JUDSKLFDO UHVXOWV RI WKH 0F&UDU\ GHQVLW\ V  
)LJXUH F SUHVHQWV WKH UHVXOWV RI WKH 0F&UDU\ V





H-RXUQDO RI 7D[ 5HVHDFK

)LUPV¶ VWUDWHJLF UHVSQVHV V

&ROHV - / 3DWHO ( 6HHJHUW 1 6PLWK 0 μ+RZ GR ILUP  
SDSHU KWWSV SDSHUV VVUQ FRP VRO SDSHUV FIP"DEVV

)HOGVWHLQ 0 μ7KH HIIHFV RI PDUJLQDO WD[ UDWHV RQ W  
5HIRUP-~~FXW~~QDO RI 3ROLVLDQDO (FRQRP\SS

\*UXEHU - 5DXK - μ+RZ HODVWLF LV WKH FRUSRUDWH LG  
5 -U 6OHPURD[LQJHFRUSRUDWH LQFRBBIPLQJWKH 8QWYFHU  
3UHVV 1HZ <RUN SS

+DQORQ 0 μ:KDW FDQ ZH LQIHU DERXW D ILUP¶V W  
VWDWH~~PHWV~~QDO 7D[RORXUQQSS

+DQORQ 0 /DSODQWH 6 . DQG 6KHYOLQ 7 - μ(YLGHQFH  
FRQIRUPLQJ ERRN LQFRPHKIDQ-~~QXUD~~DEORH LQZ~~YRQ~~¶ (FRQRPL  
SS

.LQQH\ 0 5 6ZDQVRQ ( 3 μ7KH DFFXUDF\ DQIGHD-~~RXTU~~QDO R  
RI WKH \$PHULFDQ 7D[~~YRQ~~RQ \$QVRFLLSSVLRQ

.OHYHQ + - ~~\$QXQDF~~QHYLHZ RIRQFRQSSSLFV

.OHYHQ + - :DVHHP 0 μ8VLQJ QRWFKHV WR XQFRYHU  
HODVWLFWLHV 7KHUR\ DQGHXIDGJHGFUHOU-RPX~~YRQ~~QDVWIDQ¶  
QR SS

.QHOOHU 5 0F\*RZDQ ' μ6XFFHVV WD[HV DQG HQWUHSU  
DSSURDFK¶ 8QLYHUVLW\ RI 1RWWLQJKDP GLVFXVVLRQ SDS

/HH ' 6 &DUG ' μ5HJUHVVLRQ GLVFRQWLQ~~RXW~~QDOISU  
(FRQRPH~~WV~~QDFVQR QR SS

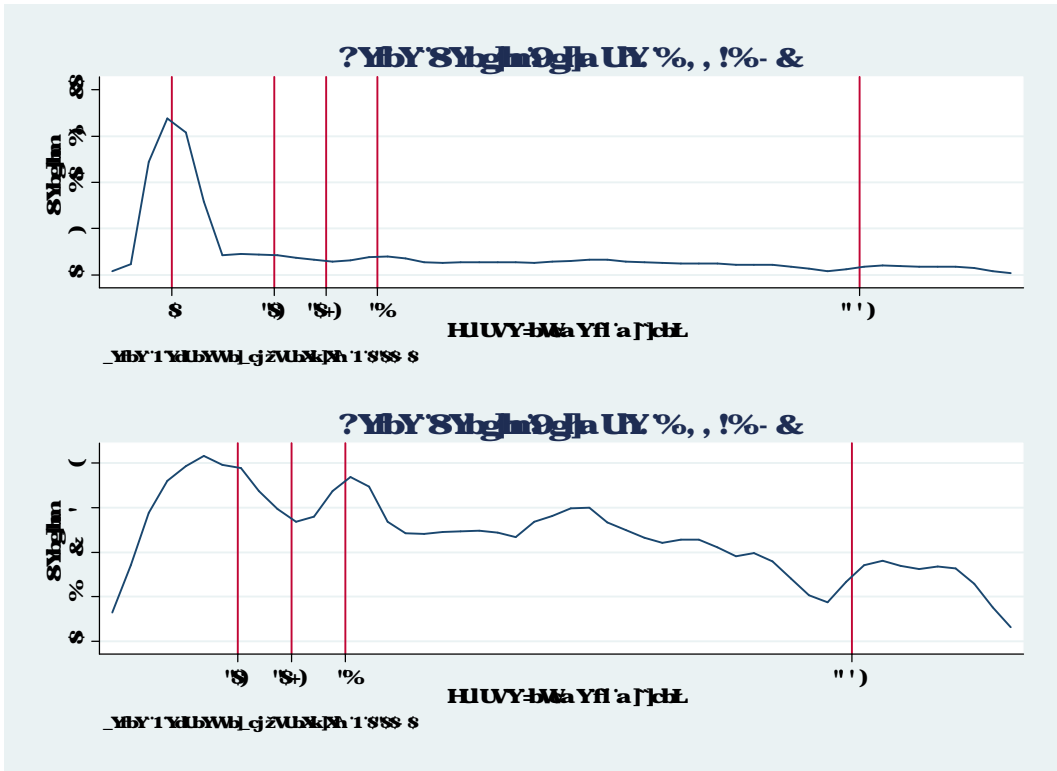
H-RXUQDO RI 7D[ 5HVHDFK

)LUPV¶ VWUDWHJLF UHVSQRVHV V

6DH] (            μ'R WD[SD\HUV ESQFUKL DDQ N(IF&N SPRLLQ WRX'¶ QDO (F  
YRO            QR            SS

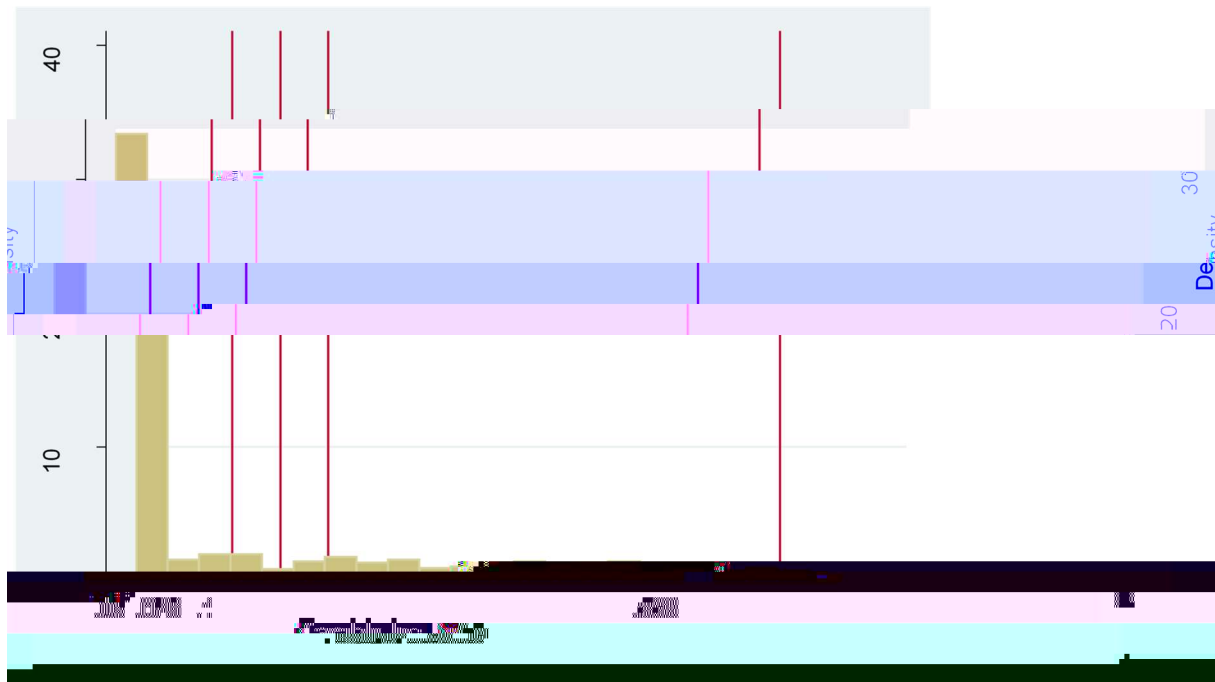


)LJ % .HUQHO 'HQVLW\

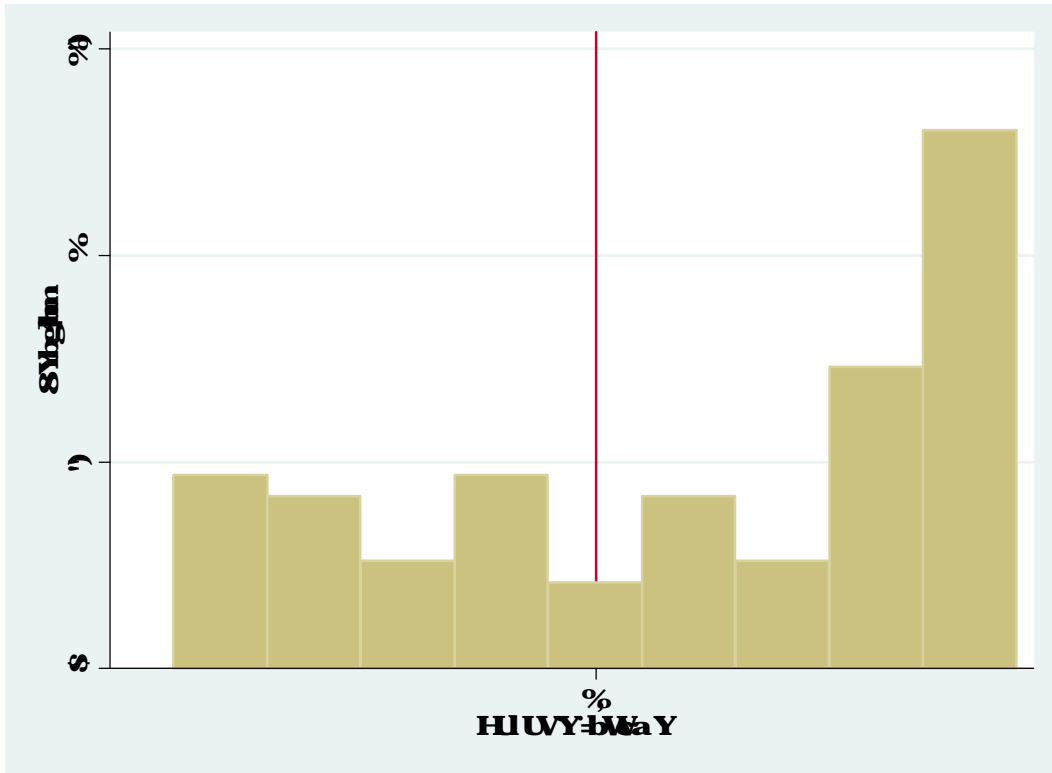


)LJ & 'HQVLW\ RI 7D[DEOH ,QFRPH & /RZHU ,QFRPH 7D[ %UDFNHWV

/RZHU DQ



& 7RS 7D[ %UDFNHW



)LJ ' .HUQHO 'HQVLW\ \$QDO\VLV IRU

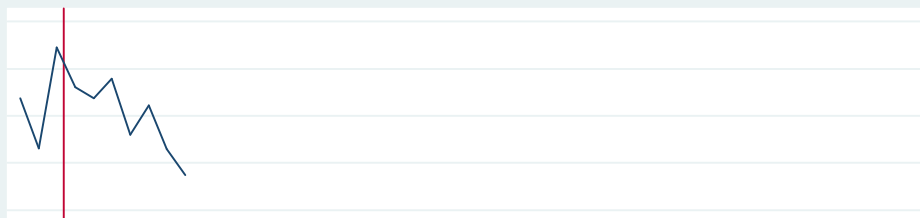
7D[ &RGH



H-RXUQDO RI 7D[ 5HVHDFK

)LUPV¶ VWUDWHJLF UHVSQRVHV V

)LJ ( 'HQVLW\ IRU WR



H-RXUQDO RI 7D[ 5HVHDFK YRO QR SS

7D[ PRUDOH SHUFHSWLRQ RI  
DXWKRULWLHV WD[ NQRZOHGJH  
D VWXG\ RI ,QGRQHVLDDQ 60(V

-RVKXD 7D[~~PRUDOH~~ XOLDQWL \$EEDV

\$EVWUDFW

7KLV VWXG\ DLPV WR DQDO\XH ZKHWKHU DQG WR ZKDW H[WHQW WD[ PRUDOH  
NQRZOHGJH DUH DVVRFLDWHG ZLWK WD[ FRPSOLDQFH E\ VPDOO DQG PHGLX  
60(V LQ ZH IRXQG WKDW 60( WD[SD\HUV\ OHYHO RI WD[ FRPSOLDQFH LV  
SHUFHSWLRQ RI MXVWLFH DQG WUXVW LQ SXEOLF DXWKRULWLHV 2XU UHVX  
DVVRFLDWLRQ ZKLFK LQGLFDWHV LWV UROH DV WKH PDLQ GULYHU RI WD[  
EHWZHHQ WD[ NQRZOHGJH DQG WD[ FRPSOLDQFH FRQILUPLQJ WKH QRWLRQ V  
DGHTXDWH WD[ NQRZOHGJH 2XU UHVXOWV VXJJHVW WKDW LQ LPSURYLQJ 60(  
WKH LQWULQVLF PRWLYDWLRQ DV ZHOO DV HQKDQFLQJ WKH WD[ NQRZOHGJH

.H\ ZRUOG\ FRPSOLDQFH WD[ PRUDOH WD[ NQRZOHGJH 60(V

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'HSDUWPHQW RI \$FFRXQWLQJ )DFXOW\ RI (FRQRPLFV DQG %XVL  
'HSRN ,QGRQHVLDDQ (PDLO MRVKXD WLPRWK\#XL DF LG  
'HSDUWPHQW RI \$FFRXQWLQJ )DFXOW\ RI (FRQRPLFV DQG %XVL  
'HSRN ,QGRQHVLDDQ &RUUH\OS\RD\GLQ\DF\DWWRU\MPZ\XOG\OLNH  
8QLYHUVLWDV ,QGRQHVLDDQ IRU IXQGLQJ WKLV UHVHDFK WKURX  
81 567 +.3



H-RXUQDO RI 7D[ 5HVHDFK

7D[ FRPSOLDQFH D VWXG\ RI ,QGR

7RUJOHU DQG 6FKQHLGHU VWDWHG WKDW F  
WKHLU WD[ GXWLHV ZKHQ WKH\ EHOLHYH WKDW SXE







H-RXUQDO RI 7D[ 5HVHDFK

7D[ FRPSOLDQFH D VWXG\ RI ,QGR

H-RXUQDO RI 7D[ 5HVHDFK

7D[ FRPSOLDQFH D VWXG\ RI ,QGR

7KH GHWDLOV RI HDFK YDULDEOH LQ WKH PRGHO DUH  
XVHG LQ PHDVXULQJ WKH YDULDEOHV DUH SURYLGHG

&RPSOLDQFH\HU FRPSOLDQFH OHYHO

ORUDOLW\PRUDOLW\ OHYHO

7UXVWYHO RI WUXVW LQ SXEOLF DXWKRULW\

-XVWLFHUFHSWLRQ RI JRYHUQPHQW MXVWLFH OHYHO

.QRZOHGJH\QRZOHGJH DQG XQGHUVWDQGLQJ UHJDUGLQJ  
XVLQJ WUXH RU IDOVH VWDWHPHQWV

\$JH1XPEHU RI \HDUV VLQFH WKH 60( ZDV HVWDEOLVKH

6L]H1XPEHU RI 60(V\ HPSOR\HHV

5(6(\$5&+ 5(68/76

'HVFULSWLYH DQDO\VLV

7DEOH VKRZV WKH GHVFULSWLYH DQDO\VLV UHVXOW  
&RPSOLDQFH 7D[ ORUDOLW\ 3HUFHSWLRQ RI -XVWLFH

H-RXUQDO RI 7D[ 5HVHDFK

7D[ FRPSOLDQFH D VWXG\ RI ,QGR

7DEOH VKRZV WKH GHVFULSWLYH VWDWLWLVLFV RI W  
JLYHQ WR WKH UHVSRQGHWV RQ DYHUDJH RI W  
+HQFH WKH PDMRULW\ RI RXU UHVSRQGHWV KDYH VI

5HJUHVVLRQ DQDO\VLV

)LJXUH VHH \$SSHQGL[ VKRZV WKH GLDJUDP IRU V  
7DEOH H[SODLQV WKH UHJUHVVLRQ UHVXOWV RI RXU

7DEOH 5HJUHVVLRQ \$QDO\VLV RI 5HVHDFK ORGHO

9DULDEOH	&RHIILFLHQW	W	3!_W_
025\$/ ,7<			+\SRWKHVLV
-867, &(			+\SRWKHVLV
75867			+\SRWKHVLV
.12:/'*(			+\SRWKHVLV
\$(			&RQWURO 9DULD
6,=(			&RQWURO 9DULD

7KH DVVRFLDWLRQ EHWZHHQ WD[ PRUDOLW\ DQG 60( WD[S

7KH UHJUHVVLRQ UHVXOWV LQ 7DEOH VKRZ D SRVLW  
7D[ &RPSOLDQFH S 7KLV UHVXOW VXSSRUWV SU

H-RXUQDO RI 7D[ 5HVHDFK

NQRZOHGJH ZLWK JHQHUDO WD[ NQRZOHGJH UHODWL  
NQRZOHGJH WR XQGHUVWDQGLQJ WD[ FRPSOLDQFH S  
XQGHUVWDQGLQJ WD[ UHJXODWLRQV )XWXUH VWXGLH  
YDULDEOHV DQG WHVW ZKLFK W\SH RI NQRZOHGJH ZLO

5()(5(1&(6

\$GDP & :HEOH\ 3 μ6PDOO EXVLQHVV RZQHUV R DUVWDLWXG  
RI (FRQRPLF 3WFROROR QR SS

\$KPHG ( %UDLWKZDLWH 9 μ8QGHUVWDQGLQJ VPDOO EX  
PRUDOH IDLUQHVV ,DQGH ZRDM\SRUDDFV 6PHDPO %XVLOHVV SFS

\$OP - μ7D[ FRPSOLDQFH DQG DGPLQLVWUDWLRQFR R RQO  
WD[DWDRUHO 'HNNHU 1HZ <RUN 1< SS

\$OP - 7RUJOHU % μ'R HWKLFV PDWRXHUQD [RFRPSOLDQFH  
YRO QR SS

\$OP - 0DUWLQH] 9D]TXH] - μ7D[ PRUDOH DQG WD[ HYD  
6WXGLHV 3URJUDP :RUNLQJ 3DSHU \$QGUHZ <RXQJ 6FK  
8QLYHUVLV\ 'HFHPEHU \$YDLODEOH DW KWWSV LFHSS J

\$OP - 0F&OHOODQ & μ7D[ PRUDOH DQG WD[FRPSOLDQFH  
QR SS

\$OP - 0F&OHOODQG \* + 6FKXO]H : ' -RXHQQR SHRSH  
(FRQRPLF QR SS ?

\$QGUHRQL - (UDUG % )HLQVWHLXUQDO RI μFRPSOLDQFH  
QR SS

%RUQPDQ 0 5DPXWXPEX 3 μ\$ FRQFHSWXDGLWDBHZR  
\$FFRXQWDQF\YRPHDUQR SS

%RXUOHWLGLV . 7ULDQWDI\OORSRXORV < μ60(V VXUYLY  
FRPPHUFDO VXFRPHVGLWRULFLDO DQGY%OKDYLS SDO 6FLH

%UDLWKZDLWHILQDFH LQ WD[DWLRQ DQG JRYHUQDQFH 5HVLV  
GHPRFUDEZDUG (OJDU &KHOWHQKDP

%UDLWKZDLWH 9 5HLQKDUW 0 6PDUW 0 μ7D[ QRQ FRPS  
REOLJDWLRQ RU VNHSWFLFLV" LQ \$OP - 'OHUORSHQD  
DOWHUQDWLYH IUDPHZRUNV ISXWSDGLQLQRQRFRPSOLD

&XUUDQ - %ODFNEXUQ 5 \$ μ2OGHU SHRSOH DQG WKH H  
SURSHQ:RULWLHV\$OR\PHQWYBQG 6RQRHW\SS

H-RXUQDO RI 7D[ 5HVHDFK

7D[ FRPSOLDQFH D VWXG\ RI ,QGR

'¶\$PERLVH \* 0XOGRZQH\ 0 μ0DQDJHPPHQW WKHRU\ IRU  
UHTXLUH\$FIDGWW¶ RI 0DQDJHYPRQW 5HQRLHZ SS

(W]LRQL \$ μ7D[ HYDVLRQ DQG SHUFHSWRXQDDI RMD\$SISDL  
%HKDYLRUDORCFLHQQR SS



H-RXUQDO RI 7D[ 5HVHDFK

7D[ FRPSOLDQFH D VWXG\ RI ,QGR

\$



3HUFHSWLRQ RI -XVWLFH

1R	6WDWHPHQW	6'	'	1	\$	6\$
	7KH FXUUHQW V\WHP RI LQFRPH WD[ LV IDLU WR DOO WD[S					
	,QFRPH WD[ H[SHQVH KDV EHHQ IDLUO\ GLVWULEXWHG DPRQJ DOC					
	7KH IDFLOLWLHV \RX UHFHLYH IURP WKH JRYHUQPHQW LV SURSRUWLRQDWH V					
	,W LV IDLU IRU SHRSOH ZLWK KLJK LQFRPH WR SD\ SURSRUWLRQDOO\ PRUH LQ WD[HV WKDQ WKRVH ZLWK ORZHU					
	7D[ UDWHV DUN IDLU LI LW LV DSSOLHG WR HYHU\ SHUVRQ UHJDUGOHVV					
	,W LV IDLU WR DSSO\ D ORZHU WD[ UDWH WR 60( WD[S					
	7KH JRYHUQPHQW JYLQJ GLIIHUHQW IDFLOLWV WR 60(V DQ 60(V LV I					
	/RZHULQJ WKH WD[ UDWH IRU DOO W\SHV RI FQRHVVHV GXULQJ D LV					
	%HDULQJ HPSOR\HHV\ W\SHV GXULQJ D LV F UHJDUGOHVV F					

7UXVW LQ 3XEOLF \$XWKRULW\

1R	6WDWHPHQW					
	&XUUHQWO\ WKH ODZ LV KH JRYHU					
	3ROLWLFLDQV DQG WKHLU IXQFWLRQ\					FXWLQJ
	7KH JRYHUQPHQW KDV DOORFDWHG WD[ LQFRPH ZHOO LQ WKH IRUP RI IDF					
	7KH 'LUHFWRUDWH *HQHUDO RI 7D[DWLRC KDV EHHQ SHUIRUPHQJ WD[ FR					
	,Q JHQHUDO WKH 'LUHFWRUDWH *HQHUDO RI 7D[DWLRC DOUHDG\ SRVVH					7D[DWLRC
	7KH 'LUHFWRUDWH *HQHUDO RI 7D[DWLRC KDV SHUIRUPHG VRFLDOL]DW					

H-RXUQDO RI 7D[ 5HVHDFK

7D[ FRPSOLDQFH D VWXG\ RI ,QGR

	\$FFRXQW UHSUHVHQWDWLYHV KDYH SURYLGHG DGHTXDWH DLG LQ KHOSLQJ 060(V EHQHILW IURP WD[ IDFLOLWLHV SDQ(				
	*RYHUQPHQW DLG LV FUXFLDO WR HFRQRPLF UHFRYHU\ SF & 29,				
	3XEOLF GRQDWLRQ LV FUXFLDO WR HFRQRPLF UHFRYHU\ SF & 29,				

7D[ .QRZOHGJH

9 7UXH ; )DOVH

1R	6WD\PHQW	7UXH	9 )DOVH
	7D[HV DUH WK\ODUJHVW VRXU		
	\$OO WD[SD\SV ZLWK LQFRPH PXVW UHJLVWHU DQG REWD QXP		
	@7D D\H\FDQ UHJLVWI		
	7KH UHFWRUDWH *HQHUDO RI 7D[DWLRQ FDQ SHUIR LQ\HFWLRQV RQ WD[SD\HL		
	[SD\HUV FDQ ILOH IRU GHIHUPHQW RU LQVWDOOPHQWV WD[ SD\PHQWV LQ		
	7D[ VDQFWLRQV DUH DSSOLHG WR WKRVH ZKR GR QRW IX WD[ REC		
	\$SSOLFDEOH WD[ VDQFWLRQV		

H-RXUQDO RI 7D[ 5HVHDFK

7D[ FRPSOLDQFH D VWXG\ RI ,QGR

3OHDVH DQVZHU WKH IROORZLQJ TXHVWLRQV LI \RXU EXVLQHV

1R	6WDWHPHQW	7UXH	9 )DOVH
	60(V FDQ XVH )LQDO 33K UDWH \H[	RI IRU D PD[LPXP RI	
	60( WD[SD\HUV PXVW UHFRUG UHSRUWLQJ SXUSRVH\	DOO WKHLU UHYHQXHV IR	

3OHDVH DQVZHU WKH IROORZLQJ TXHVWLRQV LI \RXU EXVLQHV

1R	6WDWHPHQW	7UXH	9 )DOVH
	60(V FDQ XVH )LQDO 33K UDWH \HC	RI IRU D PD[LPXP RI	
	60( WD[SD\HUV PXVW UHFRUG UHSRUWLQJ SXUSRVU(	DOO WKHLU UHYHQXHV IR	
	60( WD[SD\HUV PXVW ILOO GDWD UHJDUGLQJ DVVHWV GH		

